

UNCLASSIFIED

Systems Book



19 January 2017

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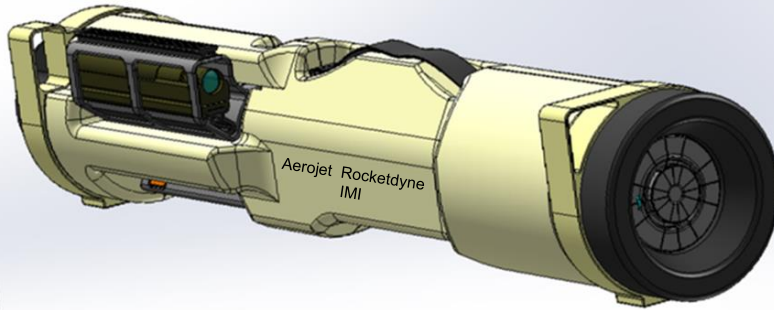
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Combined Arms Air-Ground Maneuver

LEAD – MCoE

Experiment Objective #1: How do we enable small units to conduct combined arms air-ground maneuver to defeat enemy organizations and accomplish missions in complex operational environments? (AWFC 15)

Examples: Soldier Protective Equipment, Soldier Load, Mobile Protected Firepower, Dismounted Lethality, Manned/Unmanned Teaming, Preemptive Threat Detection and Identification, Mission Command on the Move.

Shoulder Launched Individual Munition**SLIM****TECHNICAL DESCRIPTION**

Weight: 14.9 Lbs

Length: 36 inches Carry & Firing Configuration

Fire from Enclosure

Shoulder Fired Point and Shoot

Concept of Use: Individually Fired Munition

Multi Purpose Warhead:

- Light Armor
- Adobe, Brick & Concrete Structures, Bunkers
- Troops (Airburst Mode)

Engagement Ranges: 15m – 400m

Accuracy: 90% Probability of Hit at 200m

OPERATIONAL DESCRIPTION

SLIM is a lightweight, fire from enclosure, individually fired, shoulder launched, ballistic guided, disposable rocket system with a multi-purpose warhead. The system allows:

- Engagement of targets from within structures without hearing or respiratory system damage
- High probability of kill or incapacitation using a single warhead system.
- At 14.9 LBS it lightens the soldier load, increases engagement lethality and flexibility by eliminating the need for multiple specialized rocket systems with single purpose warheads

CONTACT INFORMATION

Aerojet Rocketdyne

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Bristow, VA 20136

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Sponsor – MCoE

TECHNICAL DESCRIPTION

AirShip Stinger

- Power: Solar Film and Lithium-Polymer Battery
- Payload(lbs): 1
- Endurance(hrs): 12
- Vehicle Weight(lbs): 2
- Length: 7"x7"
- Ceiling (ft): 2500"
- Speed (mph) : 10
- Radius (1day): Solar only 120 miles
- Production: 3D Printed Carbon Fiber or PS-ABS

AirShip Endurance VTOL UAV

Clean Tech Propulsion



OPERATIONAL DESCRIPTION

AirShip Stinger

- Back-packable and Wearable to deploy by troops for ISR
- FPV –First Person View navigation
- Day and night electro-optical and infrared sensors
- Small enough to provide ISR over terrestrial locations plus inside buildings and caves
- Radio communications or smart phone command and control
- Low acoustic signature for element of surprise and low detection

CONTACT INFORMATION

AirShip Technologies Group

18522 Anduin Terrace
Lake Oswego, OR 97034

www.AirShiptg.com

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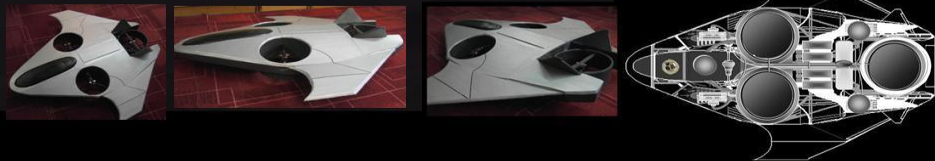
TECHNICAL DESCRIPTION

AirShip Endurance Eagle

- Power: Solar Film and Hydrogen Fuel Cell, Lithium-Polymer Battery
- Payload(lbs): V1(3)
- Endurance(hrs): 12-hrs. Solar day/30 mins night, or 53 hrs. 57 mins w/Fuel Cell add
- Vehicle Weight(lbs): 2 lbs(Solar);8.6 lbs. w/Fuel Cell
- Length(ft) : 2.27'x2.27'
- Ceiling(ft) : 4500
- Speed(mph) : 45
- Production: 3D Printed Carbon Fiber or PS-ABS

AirShip Endurance VTOL UAV

Clean Tech Propulsion



OPERATIONAL DESCRIPTION

AirShip Endurance Eagle

- Vertical take off and landing (VTOL)
- Medium altitude and long endurance (MALE)
- Line of sight and Beyond LOS capabilities
- ISR, communications relay and payload delivery
- TCAS - Traffic Collision Avoidance Systems
- ACAS - Auto-Aircraft Collision Avoidance Systems.
- Flocking (Swarm formation flight with multiple V1's)
- HAIPE IS - Encryption Interoperability Specification
- Operates in air, lands on water, then submerges
- Underwater swimming depths from 5 to 10 feet

CONTACT INFORMATION

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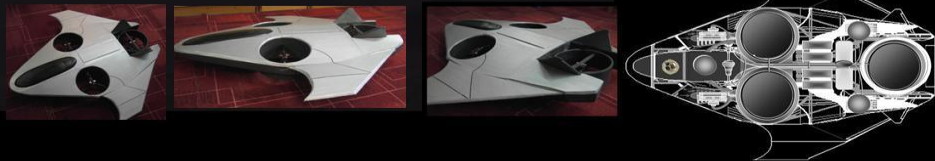
TECHNICAL DESCRIPTION

AirShip Endurance Eagle, Ray and Stinger

- Power: Solar Film and Hydrogen Fuel Cell, Lithium-Polymer Battery
- Payload(lbs): V2 (5.6)
- Endurance(hrs): V2(91.5)
- Vehicle Weight(lbs): V2(4.5)
- Length (ft) : 3.25x3.25
- Ceiling (ft): V2 10,000
- Speed (mph): 65
- Radius (1day): Solar + Fuel cells 360 miles
- Production: 3D Printed Carbon Fiber or PS-ABS

AirShip Endurance VTOL UAV

Clean Tech Propulsion



OPERATIONAL DESCRIPTION

AirShip Endurance Eagle

- Vertical take off and landing (VTOL)
- Medium altitude and long endurance (MALE)
- Line of sight and Beyond LOS capabilities
- ISR, communications relay and payload delivery
- TCAS - Traffic Collision Avoidance Systems
- ACAS - Auto-Aircraft Collision Avoidance Systems.
- Flocking (Swarm formation flight with multiple V1's)
- HAIPE IS - Encryption Interoperability Specification
- Operates in air, lands on water, then submerges
- Underwater swimming depths to 49 feet

CONTACT INFORMATION

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TECHNICAL DESCRIPTION

- Air Burst High Explosive ammunition programmed by fire control outside the barrel via IR programmer. The Vingmate Fire Control Unit has been procured for T&E by NSWC, Crane.
- The ammunition has been qualified by the German Army in 2014 and Dutch Army in 2013.
- Successful Live-Fire CDABM Demonstration conducted at NSA (FBGA) on 11 SEP 2014. USG Witnessed. Video available upon request.
- Rounds available for USG Testing and Evaluation.

OPERATIONAL DESCRIPTION

- The System is able to measure the distance to the target and program the HE and HEDP CDABM by infrared beam to detonate at programmed point. (e.g. at, above or behind the target.) NON DUD-PRODUCING
- ABM is programmed once the round exits the weapon creating a more cost effective system (Live fire and training)
- Allows for the engagement of targets in defilade and on roof tops and provides greater suppression than current inventory rounds. More accurate.

CONTACT INFORMATION

American Rheinmetall Munition
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Sponsor - MCoE

**TP****HE****TECHNICAL DESCRIPTION**

- The HE ammunition is qualified for use with a number of modern day Multiple Grenade Launchers, including the M32A1 already in use with the USMC.
- Successful demonstration of the Training Practice Cartridge 11 SEP 14 at the NSA range
- The MV HE fragmentation grenade is designed for lethal anti-personnel purposes, at a range more than double that of standard Low Velocity 40mm ammunition.

OPERATIONAL DESCRIPTION

- The maximum range of the grenade is 850 meters, which provides a reach advantage against small arms fire and most shoulder fired weapons.
- The MV Practice Tracer round with tracer effect, is a training and night operations round and is ballistically matched with the other ammunition in the ER portfolio.
- The TP ammunition is inert, with the exception of the tracer compound, and has a maximum application distance of 850m. Must be fired from MILKOR Multi-shot grenade launchers.

CONTACT INFORMATION**American Rheinmetall Munition**

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Sponsor - MCoE



TECHNICAL DESCRIPTION

- Higher impact speed equals a more reliable impact function, due to higher impulse
 - Arming (19m) and non-arming-distances (11m) remain unchanged from current rounds
 - Gas pressure at cartridge case is 140 Bar (Acceptable for shoulder launched munitions) No damage to weapon
 - Net Explosive Weight (NEW) is 20 grams
 - Projectile weight is 182 grams
 - Recoil energy in Jules is 34.3
- 200 rounds per man per day according to Report No. TOP-3-2-504 Safety Evaluation of Hand and Shoulder Weapons, Table 1 - Firing Limitations for Test Weapons

OPERATIONAL DESCRIPTION

- Increased anti-personnel capability. More fragments than HEDP (M430A1) MAX RANGE: 650 M
- Non-Dud producing – Self destruct fuse after 20 sec.
- Increased velocity equals shorter time of flight thereby increasing accuracy and probability of hit (Soldier in the loop)
- Flatter trajectory equals less time of flight so there is less effect of weather, wind, etc. increasing accuracy and probability of hit (Soldier in the loop)
- Fired from currently fielded 40mm launchers (M320, M203 and MILKOR Multi-launcher)

CONTACT INFORMATION

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Sponsor - MCoE

TECHNICAL DESCRIPTION

- A Stabilized Weapon Platform in which Fire Control capabilities are directly couple to the mechanical movements of the weapon system. P(hit) increase on stationary and moving targets for individual soldiers firing small arms in all scenarios.
- The barrel and receiver are articulated independently from the shooter-interface components of the system. Separation of the projectile-launching components of the weapon system from the user-interface components is controlled via target tracking software and embedded mobile processing hardware that optically monitor target position relative to point of aim.

OPERATIONAL DESCRIPTION

- Weapon and shooter may be stationary, supported, unsupported, walking, riding on or in a vehicle and can easily be shot from hip, shoulder, around corners and other alternate (normally less effective) positions and means. Use of heads up displays, normal eye in line with optics, goggles and with night sensors. Tagging, marking and interdiction of multiple targets with priorities is part of the package. Firing iterations can execute by command so each time trigger is pulled by shooter, the barrel and fire-control are lined up on each target before the shooter could do this themselves.

CONTACT INFORMATION

ARDEC

RADR-EIJ(JSSAP), Bldg. 65
Picatinny Arsenal, NJ 07806

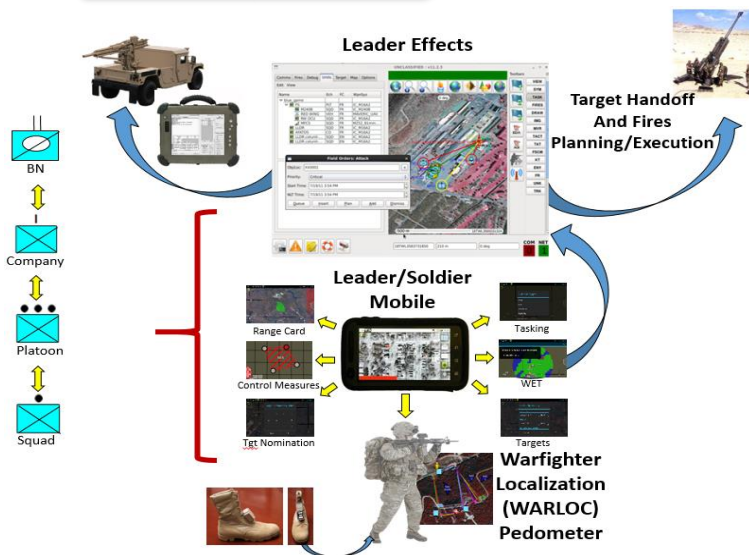
<http://www.pica.army.mil/Picatinny/>

POC: Terence F. Rice

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Email: terence.f.rice.civ@mail.mil

Sponsor - MCoE



TECHNICAL DESCRIPTION

- Mobile components run on Nett Warrior and/or MAFLA software architectures. Current development is done using surrogate architecture
- Mounted components run on Linux x86 platform
- Accurately localize dismounts in GPS denied areas
- Data will flow from mobile side to mounted side
- Technology will required IP-based network hardware (ex. Radios) and interfaces to communicate with other systems. Currently mobile components are integrated with Nett Warrior net services
- Product supports CoT, JVMF and other Army standard messaging protocols

OPERATIONAL DESCRIPTION

Provides the small unit leader/soldier role based capabilities that enables the planning, coordination and execution of networked LOS/BLOS effects, supports cooperative engagements, the integration of maneuver and fires, as well as the optimization of effects asset management and execution to include sensor-to-shooter information processing and target hand-off. Capabilities include: Improved weapon placement tool, planning & coordination sharing capabilities between lower and upper echelons such as range cards and sector sketches, control measures, target nominations, strike warnings, taskings, and denied GPS

CONTACT INFORMATION

ARDEC

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Soldier
Radio



Nett
Warrior
EUD



TECHNICAL DESCRIPTION

- WARLOC system is developed with a Micro-Electro-Mechanical Systems based IMU that provides a low cost and more accurate positioning results in denied GPS environment deployable to any platforms for dismounts and mounted operations.
- WARLOC provides distributed SA for manned and unmanned effects teaming operations in subterranean environments.
- Denied GPS algorithms, tracking and collaborative technologies for manned and unmanned platforms in order to assist leaders in subterranean site exploitation.
- Scalable, modular, Soldier-operated/maintained and low cost solution.

OPERATIONAL DESCRIPTION

- Relative position accuracy in 3D (x,y,z) within less than 5 meters
- Improve target geo-location accuracy
- Increase speed and accuracy with for position updates, more robust real time operations in denied GPS environments by increasing situational awareness for the unit and commander during mission
- Scalable, modular, Soldier-operated/maintained, deployable to any platforms for dismounts and mounted operations
- Dismounts and mounted capability modules are relevant for both manned and unmanned vehicles

CONTACT INFORMATION

ARDEC

Bldg 95N

Picatinny Arsenal, NJ 07806-5000

<http://www.ardec.army.mil>

POC: Ketula Patel

Tel: 973-724-8671

Email: ketula.patel.civ@mail.mil



TECHNICAL DESCRIPTION

- Forward-deployed, customizable aerial platform
- Simple PC or app software converts Soldier inputs into a UAS designed around a specific mission
- Small inventory of inexpensive, off-the-shelf electronics enables a wide range of UAS capability
- Rapid manufacturing, potentially in a REF Ex Lab or at CO/BTRY/TRP supply
- Hover capable vehicle easily assembled with basic tools; future plans for fixed wing vehicle
- Unit of issue item that is maintenance free and recoverable, disposable, or attritable
- Easily updated part library to avoid part obsolescence

OPERATIONAL DESCRIPTION

Demonstrate an ability to rapidly design, manufacture, and deploy a small, Soldier-borne aerial sensor platform based on mission needs in a specific AO using minimal parts.

- Supports small unit decentralized decision making and extends Soldiers' and units' reach
- Custom solution automatically designed at point of need to support mission needs
- Vertical take-off and landing in rugged, austere environments eliminates need for launch equipment
- "Snap-on" of existing/planned mission systems reduces New Equipment Training requirements

CONTACT INFORMATION

Army Research Laboratory

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Sponsor – MCoE/SCoE



TECHNICAL DESCRIPTION

- The RAILS Pack Frame is compatible with all MOLLE Pouches.
- The Pouches can be Mounted Vertically or Horizontally.
- The RAILS Pack Frame has a Load capacity of 400Lbs.
- The removable Platform can be used to carry additional mission essential items.
- Constructed from Aircraft Aluminum, which is CARC (Chemical Agent Resistant Coating) Coated.
- Reduces weight compared to current MOLLE.

OPERATIONAL DESCRIPTION

- An integrated pack frame that can be fitted with mission essential gear.
- Can be configured to support all Crew Served Weapons systems (M249, M240, 60mm Mortars and Carl Gustav)
- Rail pack frame can be configure for any mission requirements while maintaining the ability to carry personal items in a two day patrol bag.

CONTACT INFORMATION

Bulldog Tactical Equipment

4732 SW, 35th Ave

Ft Lauderdale, FL 33312

www.bulldogequipment.us

POC: Rob Jones / Jason Simione

Tel: (706) 536-0418 / (954) 448-5221

Email: rjones1465@gmail.com

Sponsor - MCoE

SFELS (Shoulder Fired Expedient Laser System)



TECHNICAL DESCRIPTION

Aiming laser system for SLM weapons systems. This application will upgrade current SLM weapons to true night time capable platforms. A laser system will be specifically designed for a particular model SLM system and can be used with or without night vision goggles.

Concept proven with currently fielded SFL-100 Aiming Laser for the M72 LAW A7/A9 and M141 BDM in development at TRL 8.

Laser options are visible red and infrared for use with night vision goggles. Class 3R & Class I.

OPERATIONAL DESCRIPTION

Provides the Soldier with a night aiming laser:

- Attach, range, adjust for elevation and fire
- Automatic boresight alignment
- Provides big jump in night time accuracy and quicker engage times
- Quick attachable/detachable
- Easy to train and operate
- Easy to implement to existing TTP
- Low cost
- Used with or without night vision goggles

CONTACT INFORMATION

Crimson Trace Corp.

9780 SW Freeman Drive
Wilsonville, OR.

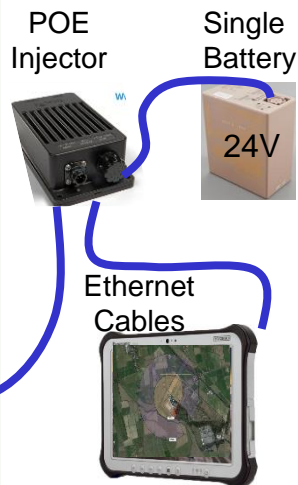
<https://www.crimsontrace.com/>

POC: Jeff Hoblitt

Tel: 509-434-4117

Email: jeffh@crimsontrace.com

Sponsor - MCoE

ELM-2114**TECHNICAL DESCRIPTION****Radar Size, Weight, and Power**

- 6.7" W x 5.1" H x 2.0" D – Wt 2.2 lbs
- Power: 15 Watts at 48 VDC (>24 hr ops/bat)

Radar Reliability and Maintenance

- No moving parts, environmentally sealed
- No routine maintenance

Detection Range

- Human: 500 meters, Vehicle: 1,000 meters

Accuracy and minimum detectable velocity

- Electronically scans 90° in azimuth
- Azimuth accuracy: 1°
- Minimum velocity 0.5m/sec (1.1 MPH)

OPERATIONAL DESCRIPTION

Objective: Provides Sct Tms with a light weight, small, all weather ground surveillance capability.

Method: ELM-2114 K-Band radar can be setup on a tripod, a tree, or vehicle. The system weight is 10.3 lbs. (radar, battery, POE injector, and tablet).

Operational: Radar can be place up to 100 meters from tablet, POE Injector, and battery.

Observe enemy movement / Monitor friendly position /movement / Simple MMI provides map view, target location, C2 / Fuse multiple radars into one COP

CONTACT INFORMATION**ELTA North America**

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Sponsor – MCoE

**TECHNICAL DESCRIPTION**

- Integrally suppressed upper assembly.
- Optimal suppression in the given 15.7" barrel length.
- Added strength over a conventional barrel/suppressor assemblies.
- Custom barrel rifling for the given barrel length.
- Improved blowback system.
- Design eliminates un-burnt powder explosions.
- Familiar and ergonomic hand guard sizing.
- Incorporates unmatched insulation for your hand and optics with genuine Insulon vacuum tubing.

OPERATIONAL DESCRIPTION

An integrally suppressed upper receiver for M4 / M16.

- A compact package vs. the added length of adding a suppressor.
- Always "ON" when you need it.
- Easy serviceability that extends the life of the suppressor.
- Reduces blowback.
- Integral suppression is quieter than a thread-on suppressor of equal length.
- The SEG solution solves the detonation of un-burnt powder found on other brand design attempts.
- Is cool to the touch for operator comfort.

CONTACT INFORMATION**Federal Resources**

235-G Log Canoe Circle
Stevensville, MD 21666

www.federalresources.com

POC: Scott Graham

Tel: (770) 570-0943

Email: scott.graham@federalresources.com

Sponsor – MCoE

TECHNICAL DESCRIPTION

- Premium mono-core baffle in suppressor allows easy cleaning and maintenance, eliminates the need to replace suppressors.
- Titanium suppressor can handle full-auto fire for a limited time before cooling, Stainless can handle full-auto fire for as long or longer than any.
- Baffle design efficiently reduces blowback gassing and bolt speed changes when using a suppressor.
- The fully symmetrical Increases accuracy and a reduces bullet shift.
- Tempered titanium for less muzzle weight and higher heat tolerance.



OPERATIONAL DESCRIPTION

Lighter, Quieter, Serviceable, More Accurate, Less Bullet Shift, More Durable, Less Blowback.

- The first durable Serviceable suppressor that wont need throwing out when dirty.
- The SEG suppressor tested the quietest signature when comparing any manufacturer's can of equal size.
- Less bullet shift when comparing shots with or without suppressors. Faster acquisition and repeatability between guns.
- Eliminates blowback gassing related to suppressor use.

CONTACT INFORMATION

Federal Resources

235-G Log Canoe Circle
Stevensville, MD 21666

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POC: Scott Graham

Tel: (770) 570-0943

Email: scott.graham@federalresources.com

Sponsor – MCoE

**TECHNICAL DESCRIPTION**

- Full expanding
- Solid copper
- Heat treated
- FBI ballistic Gel Tested
- CNC repeatability
- Choreographed quality control
- Premium primers, powders and cases
- Ball, Expanding, and Fragmenting

OPERATIONAL DESCRIPTION

The first ammunition built for suppressors by suppressor manufacturers for greatly improved ballistics compared to other subsonic ammunition.

- Stealth and good ballistics
- Calibers that don't exist anywhere else
- Expanding subsonic ammunition
- The best long range energy and accuracy
- Cycles in most full-auto configurations
- Great for closed areas; Helicopters, trucks, in buildings, etc.

CONTACT INFORMATION**Federal Resources**

235-G Log Canoe Circle
Stevensville, MD 21666

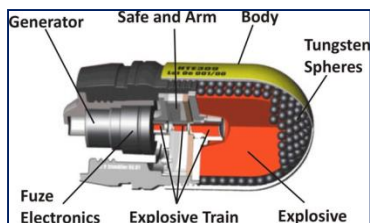
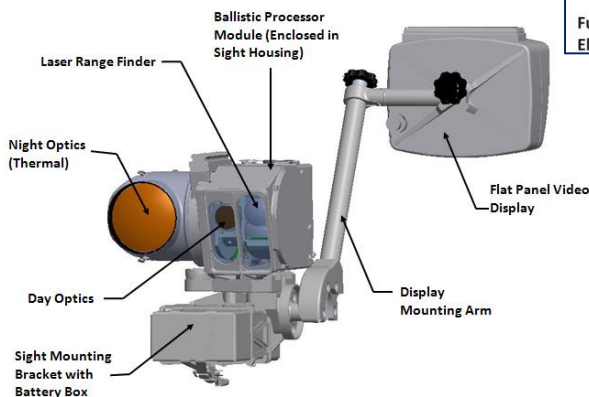
www.federalresources.com

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Sponsor – MCoE



TECHNICAL DESCRIPTION

- Full solution Fire Control system for use with 40mm or .50 caliber crew served weapons
- Integrated, high resolution color Day camera
- Integrated 17mm 640x480 uncooled thermal camera
- 3X magnification with 2X Zoom capability (6X)
- Integrated 2600 meter Laser Range Finder
- Airburst programming capability firing 40mm x 53mm High Velocity Air Burst Ammunition
- Programmable, time based fuze with self destruct mechanism
- Programming AB ammunition via Radio Frequency

OPERATIONAL DESCRIPTION

- Fire Control provides the warfighter the ability to detect, recognize, identify and accurately engage targets under both day & night time conditions
- Significantly increases first hit probability
- Reduced ammunition consumption
- Rapid engagement of multiple targets
- Air Bursting ammunition provides greater lethality compared to conventional, point detonating rounds
- Multiple modes of operation - airburst "In Proximity & Near Threat" (2m in front of target), Point Detonation (Impact), Airburst Delay (timed) and "String of Pearls" (3 or 5 Shot Burst)

CONTACT INFORMATION

General Dynamics Ordnance and Tactical Systems

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Sponsor - MCoE

**TECHNICAL DESCRIPTION**

- Cartridge case, primer and propellant are the same as those used in conventional ammunition
- Projectile is two part: jacket is made of conventional gilding metal and core is steel (no lead is used)
- Core has a set of fins in the back of the bullet to gradually add drag and prematurely force projectile out of the sky
- Cartridge is fired out of weapon without any weapon modification. Use is completely transparent to user
- Tracer version available, can trace up to 1,000 m.

OPERATIONAL DESCRIPTION

- .50 caliber Reduced Range (RRA) ammunition provides full projectile energy and ballistic match as conventional M33/M17 ammunition up to 1,000 meters.
- Maximum range of conventional M33/M17 type cartridges is close to 7 km whereas RRA cartridges will not fly further than 3.5 km.
- Operationally this allows users to take down a target at 1 km while limiting overall range to 3.5 km, half of the current M33 round.

CONTACT INFORMATION

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Sponsor - MCoE

SWORD Technology

(Soldier Weapon Observer Reconnaissance Devices)



- Rifle Scope Camera
- CNPDS Core (Integrated Power, Data & Navigation)
- Weapon Based C2 Device (Systematic Edge)
- Power/Data Integrated Sling
- Integrated Power & Data Load Carriage Vest
- Radio Interface
- Vest Integrated Power

TECHNICAL DESCRIPTION

SWORD technology is based on commercial/military standards and android applications.

- COTS Android technology for SA/target designation (limited 'smart' scope capability)
- Integrated power, data, and navigations systems
- Integrated scope camera and laser rangefinder
- Compatible with NATO STANAG data and powered rail standards
- Configurable QOS data comms for DIL networks
- Modular components allows multiple configurations, i.e. sniper, scout, etc.

OPERATIONAL DESCRIPTION

Demonstrate the ability to enhance the lethality and survivability at the tactical level by bringing enhanced SA and fire-control capability to the individual Marine/soldier and Weapon via current tactical communications:

- Compatible with current tactical radios for transmission of critical data (or commercial comms)
- Enhances real time information sharing between front line and higher echelon commands
- System can receive or transmit target imagery/designations, map overlays/annotations
- Transmit rifle parametrics (shot count, barrel temp)

CONTACT INFORMATION

Headquarters Marine Corps Intel – Intelligence Technologies Division

27402 MCB-1 (MCIA West)
Quantico, VA 22134

POC: Bill Taggart

Tel: (540) 623-4898

Email: William.Taggart@mantech.com



TECHNICAL DESCRIPTION

SxV – A lightweight pulse doppler solid state X band radar utilizing high pulse compression ratios to achieve good range discrimination, coupled with multiple doppler filters to enable detection of targets below the clutter threshold based on the doppler signatures. CxEye – Touch screen or pointing device based software controlling radars and cameras. Target classification by the user is a simple process enabling a clear situational awareness picture to be developed. Simple “Track” or “No Track” zones assist in reduction of false alarms.

OPERATIONAL DESCRIPTION

SxV - A light weight all weather 360 degree ground surveillance radar with low level air coverage. Suitable for detecting dismounts, vehicles, low flying aircraft and UAV/UAS. Can be tripod, mast or vehicle mounted. CxEye – A simple user interface to control up to 4 SxV radars and numerous cameras. Enabling a simple C2 system to be set up in a few minutes at a forward operating position. Can be run from small rugged laptops to large command room displays.

CONTACT INFORMATION

Kelvin Hughes LLC
631 South Washington Street
Alexandria, VA 22314

www.kelvinhughes.com/security/uav-drone-detection

POC: Adrian Pilbeam
Tel: (202) 378 8134
Email: adrian.pilbeam@kelvinhughes.com

TECHNICAL DESCRIPTION

OSS delivers the next generation of weapon suppression and signature reduction devices. Our multiple patented flow through suppression technology successfully eliminates the adverse and limiting aspects of 100+ year old antiquated baffle type suppressors. OSS devices are specifically engineered to a weapon's operating system, caliber, and barrel length. The function and physics of these variables are the essential basics of every design. The weapon system's performance and reliability will not be sacrificed in order to gain the advantages of suppression.

OPERATIONAL DESCRIPTION

The OSS system maintains the traditional tactical advantages of suppression and eliminates the disadvantages. Our Energy, Particulate Capture and Control Modular Devices are revolutionary, utilizing 12 patented technologies. Additionally, we add modularity, multi-caliber interchangeability including the use of UTM/SIM, M200 Blank Ammo, frangible, and subsonic, replaceable/sustainable internal components, reduced length, increased reduction of sound, flash and heat signatures, and unprecedented recoil reduction

CONTACT INFORMATION**Operators Suppressor Systems**

280 West Central Ave
Murray Utah 84107

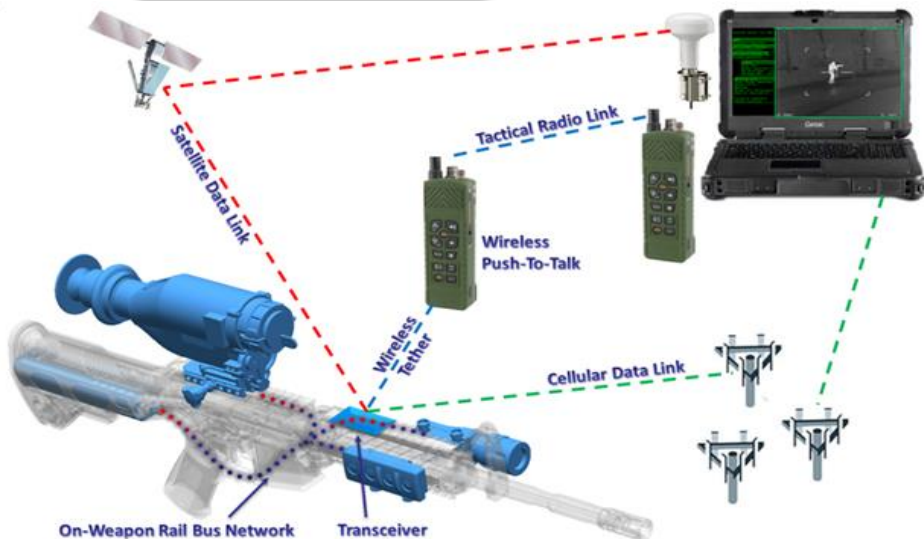
www.osssuppressors.com

Technical POC: Dennis Cunningham

Tel: (801) 542-0425

Email: dc@osssuppressors.com

Sponsor – MCoE



TECHNICAL DESCRIPTION

A power and data solution for soldier weapons:

- Uses existing Mil-Std 1913 “Picatinny” Rails and compatible with NATO 4694 Rail
- 5 Mb/s data speed today, 25 Mb/s in 2016
- Redundant contact pairs and power sources and supports power sharing/scavenging between devices.
- Accepts 4 to 32 volts power source and supports multiple voltage and amperages simultaneously
- Does not increase handguard weight or size
- Intelligent Rail is TRL 7

OPERATIONAL DESCRIPTION

The Intelligent Rail® provides rugged, secure power and data connection within the Picatinny Rail.

- Retrofit kits for standard Army small arms and accessories - supports modularity
- Nett Warrior and ISA compatible
- Connects weapon-mounted accessories to the network through the Nett Warrior EUD and soldier radio
- Reduces battery logistics tail to one battery for all weapon mounted devices and reduces soldier carry burden
- Addresses AWFCs #1, 14, 15 & 19

CONTACT INFORMATION

Prototype Productions, Inc.

21641 Beaumeade Circle, Suite 301

Ashburn, VA 20147

www.protoprod.com

POC: Don McLaughlin

Tel: (571) 220-1532

Email: dmclaughlin@protoprod.com

Sponsor - MCoE



TECHNICAL DESCRIPTION

The PD-100 Personal Reconnaissance System (PRS) with the Black Hornet airborne sensor is a Soldier Borne Sensor (SBS) System that provides the Dismounted Soldier with a game changing personal airborne ISR capability.

- Extremely light weight /18 grams sensor
- US DoD specific radio/communication system
- Day/Night Vision live video feed & snapshot
- Advanced Autopilot/ GPS & GPS denied functionality
- Inherently safe

OPERATIONAL DESCRIPTION

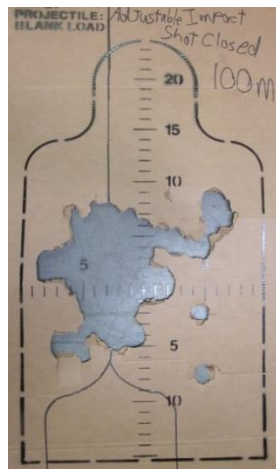
The PD-100 is designed as a short range ISR system for lower echelon combat units. The complete system is easily carried by a single soldier on the combat vest, providing the unit with a quick reaction reconnaissance and surveillance capability. The extremely small and light UAVs are inherently safe and poses no risk to personnel or other air vehicles, allowing the system to be operated almost anywhere at any time without prior airspace coordination. It is easy to use and requires only a few hours of training.

CONTACT INFORMATION

Prox Dynamics USA Inc.
4801 A Eisenhower Avenue
Alexandria, VA 22304
www.proxdynamics.com

POC: Arne Skjaerpe
Tel: (813) 300 6249
Email: arne.skjaerpe@proxdynamics.com

Sponsor – MCoE/ICoE



TECHNICAL DESCRIPTION

- The Adjustable Range Impact Munition is based on the design of the Defense Technology 40MM eXact iMPact LE Extended Range Impact Munition
- The unique projectile design (US Patent 8,618,455) incorporates a user-adjustable gas bleed feature to adjust velocity
- Excellent accuracy, flat trajectory, and non-lethal performance at short and long ranges.
- Proven projectile design, materials and high/low pressure smokeless propulsion system.
- Extensive testing to verify extended range performance and non-lethality across the optimal operational range (0 – 70 meters).

OPERATIONAL DESCRIPTION

The existing Adjustable Range Impact Munition is a blunt impact round that can be adjusted between short and long range operation. It is designed for 'direct fire' deployment, from 0m to 40m (Open position), and from 40m to 70m (Closed position).

- Delivers blunt impact and irritant/marketing payloads
- Dispersion within 17in at 100m (see photo)
- 115 ft/lbs. energy at 100m (Closed position).
- Muzzle energy at only 115 ft/lbs (Open position).
- Indexing and positive locking tabs for ease of use.
- NL performance at close range (NIJ 0101.04, 3-Rib Ballistic Impact Dummy, Gelatin Penetration)

CONTACT INFORMATION

The Safariland Group

1855 South Loop

Casper, WY 82601

www.safariland.com

POC: John Kapeles

Tel: (307) 235-2136 Ex 234

Email: john.kapeles@safariland.com

Sponsor – MCoE/MSCoE

TECHNICAL DESCRIPTION

NEMESiS QuadraCopter : 30-45 minute flight time. 10 Km range (max), 5 lbs payload, gimballed targeting and surveillance camera system, electro-magnetic pendant for external load delivery and 3D Digital Gyrocompass. Fully autonomous or manual operation. Weaponized option under development.

Software: Georeferenced video display on a map overlay. Enhanced video is projected on terrain as a georeferenced/geo-oriented live video stream with real time GPS location of drone, man, or vehicle. Real time share data capability.

OPERATIONAL DESCRIPTION

Demonstrate full Combat Support, SA/ISR drone capability for ground troops, command and control. System provides:

- Real time tactical information/GPS locations
- Autonomous/manual forward observation capability
- Targeting/enemy position information for air/artillery
- Equipment delivery to deployed troops
- Search and Rescue/beacon locating
- IED support/tool delivery/over-watch
- Engage and assault the enemy (weaponized)
- Virtual tethering, convoy over-watch

CONTACT INFORMATION

Vision Technologies, Inc.
700 SE 5th Street, Suite 2
Bentonville, AR 72712
www.visntec.com

POC: Robert Lee Thompson
Tel: (479)-366-6114 Mobile
Email: l.thompson@visntec.com

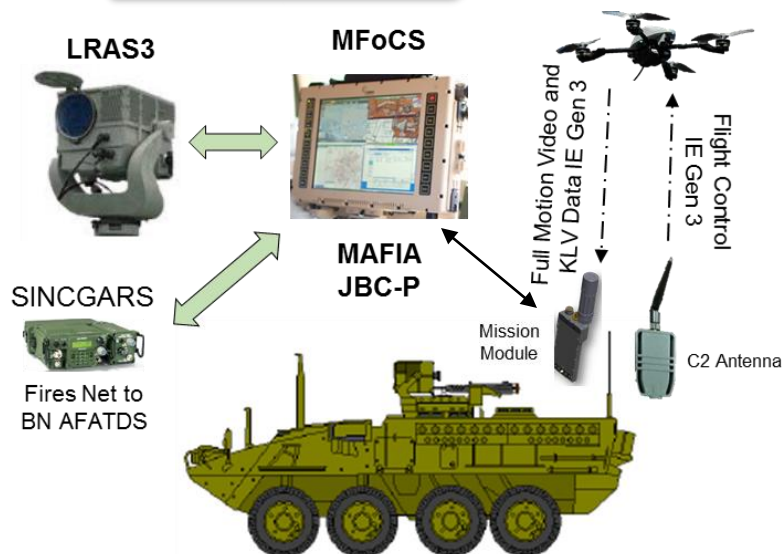
Sponsor – MCoE/SCoE

Enhanced Air-Ground Operations

LEAD – FCoE

Experiment Objective #2: How do we enhance air-ground operations to ensure access, seize the initiative and defeat the enemy in close combat? (AWFC 17 & 18)

Examples: Real Time Communications and Deconfliction, Close Air Support, Counter UAS, Digitally Aided Close Combat Attack.



TECHNICAL DESCRIPTION

- 100% Government Owned Software
- Hardware agnostic (future hardware migration)
- Employs the AMRDEC Army Global Engine software - similar to Google Earth Engine
- Applies the AMRDEC Terrain Association algorithm to determine heading and provide User immediate orientation into surrounding terrain.
- Employs NAVAIR unclassified rPFIs (Precision Fires Imagery)
- Exploits SUAS & Soldier Borne Sensor FMV
 - Displays FMV and location cursor on AGE
 - Direct control of the UAS from the MAFIA user interface

OPERATIONAL DESCRIPTION

- MAFIA installed on a Mounted Family of Computer Systems (MFOCS) mounted on a Stryker and integrated with a Long-Range Advanced Scout Surveillance System (LRAS3).
- The MAFIA mounted configuration will provide the Scout / FO the ability to use the LRAS3 to obtain CAT 1 coordinates of a target and send a Call for Fire message through the fires chain to the Battalion AFATDS. The Scout / FO will also have the ability to launch and control a UAS on the move and use the Full Motion Video from the UAS for SA and targeting.

CONTACT INFORMATION

AMRDEC

5400 Fowler Road
Redstone Arsenal, AL

POC: Jonathan Porter

PH: 706-545-7287

Cell: 706-580-6339

Email: jonathan.s.porter.ctr@mail.mil

Sponsor - FCoE

Small Unit Expeditionary Sustainment

LEAD – SCoE

Experiment Objective #3: How do we improve small unit sustainment to maintain freedom of action and movement during sustained operations in austere environments? (AWFC 12, 16 & 20)

Examples: Autonomous Ground and Air Resupply, Water Demand and Distribution Reduction, Fuel Demand Reduction, Alternate Power Generation.

**TECHNICAL DESCRIPTION**

Pen sized pocket water purification device featuring ozone water purification process.

- Weight: 30 grams, or 1.58 ounces
- Size: L 5 3/4" x W .5" x H .5"
- Power: on board rechargeable LI batteries
- FDA, EPA, or NSF approved/compliant components
- Optional disposable filters under development

Advanced ozone technology provides highly effective microbiological control in austere conditions.

OPERATIONAL DESCRIPTION

Lightweight, pocket water purifier designed to purify 250 ml (8 Oz) or 500 ml (16 oz) of water in :30 or :60 seconds.

- Up to 30 uses per charge
- Recharges in 30 minutes via USB
- Superior to UV light systems; ozone does not require filtration to purify water.
- Output water carries capability. It may be used to sanitize bottles, bladders, etc.
- No additional chemicals required.
- Completely silent operation

CONTACT INFORMATION

Roving Blue, Inc.
5220 St. Patrick's Road
Lena, WI 54139
www.rovingblue.com

POC: Marianna "Yana" DeMyer
Tel: (920) 621-2163
Email: yanademyer@gmail.com

**TECHNICAL DESCRIPTION**

Five-stage water purification process includes dual debris screen, flushable nanometre filter, silver + activated carbon filter, and ozone generator.

- Weight: < 23 pounds
- Size: L 18.7" x W 14.8" x H 7"
- Power: Any DC (10-30V), or 110-220V AC source
- FDA, EPA, or NSF approved/compliant components
- Made in the USA
- Easy filter changes
- Optional filters for specific problem areas (lead, etc.)

Advanced ozone technology provides highly effective microbiological control in austere conditions.

OPERATIONAL DESCRIPTION

Lightweight, ruggedized, turn-key water purification system designed to produce up to 1 litre/minute (9+ gallons per hour) of drinkable water from surface freshwater sources (200+ gallons per day).

- Significant weight/power reduction of water purification equipment for small military units.
- Additional benefit: Output water carries downstream sanitation capability. It may be used to sanitize food, surfaces, water storage tanks/bladders, medical equipment and *potentially* for wound irrigation.
- No additional chemicals required.
- Quiet operation

CONTACT INFORMATION

Roving Blue, Inc.
5220 St. Patrick's Road
Lena, WI 54139
www.rovingblue.com

POC: Marianna "Yana" DeMyer
Tel: (920) 621-2163
Email: yanademyer@gmail.com

Sponsor – SCoE



OPERATIONAL DESCRIPTION

Using equipment pictured above and a 14 step procedure, Soldiers can assess, identify, locate and mitigate contamination of nerve & many Non-Traditional Agents (NTA) agents. This process eliminates external CBRN Units, while enhancing survivability and maintaining unit integrity. The Chemical Self Assessment and Mitigation (C SAM) Bag can decon two combat vehicles and uses 5 gallons of water per vehicle. C SAM Bag includes; CIDAS, JGPD-HME, JSEW and Tyvek suit, gloves and boots for MOPP gear exchange. Time to assess, identify, locate and mitigate contamination on both vehicles is two hours.

TECHNICAL DESCRIPTION

Contamination Indicator Decontamination Assurance System (CIDAS), Joint General Purpose Decontaminate-Hardened Military Equipment (JGPD-HME) and Joint Service Equipment Wipe (JSEW).

- CIDAS, a powdered binary enzyme solution that detects, identifies and locates nerve and many NTA agents on surfaces when mixed with water.

- JGPD-HME, a powdered non-corrosive Decon solution that neutralizes traditional and non-traditional chemical and biological agents when mixed with water.

- JSEW, wipe removes gross contamination limiting spread of agent and reducing contact hazard

CONTACT INFORMATION

**United States Army CBRN School
Joint Experimentation and Analysis Division**

14030 MSCoE Loop

BLDG 3203, Suite TH2023

Ft. Leonard Wood, MO 65473-8929

<http://www.wood.army.mil/newweb/chemical/>

POC: Joseph Call

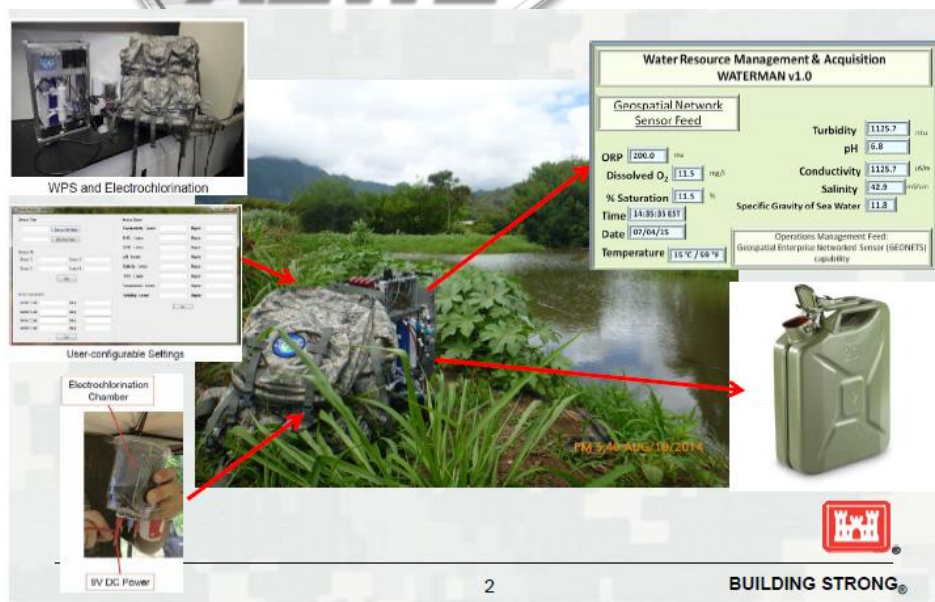
Tel: (573) 563-7351

Email: joseph.e.call4.civ@mail.mil

TECHNICAL DESCRIPTION

Single-person portable toolkit for water assessment and purification that provides the following capabilities:

- Reverse osmosis water purification (1.5 L/min.)
- Produces up to 50 gal/day
- On-the-fly bleach production from salt and water
- In-line assessment of physical water quality parameters (as defined by TB Med 577)
- On-board mesh network and communications for data logging and relay
- Currently weighs 44 lbs., 12 volt DC pump requires 35 watts continuous power
- Operates 6 to 7 hours on a BB-2590 battery



OPERATIONAL DESCRIPTION

Demonstrate the ability to produce purified water from a fresh water source, produce bleach from a salt water solution for water sanitization, assess product water for physical water quality parameters, and relay data to the user via wired or wireless protocol.

Allows smaller units to evaluate water sources, produce water as needed, ensure that product water meets physical water quality standards.

Mitigates reliance on bottled water to allow increased unit responsiveness and reduces costs associated with larger scale water production and transport.

CONTACT INFORMATION

U.S. Army Corps of Engineers

7701 Telegraph Road
Alexandria, Virginia 22315
www.erdc.usace.army.mil

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Tel: (703) 428-6128

Email: andmorgan.r.fisher@usace.army.mil

Sponsor - SCoE

Small Unit Maneuver Support

LEAD – MSCoE

Experiment Objective #4: How can Maneuver Support capabilities further enable the Maneuver Force? (AWFC 5, 12 & 15)

Examples: WMD Disruption, Neutralization or Destruction, Gap Crossing (Wet & Dry), Terrain Shaping (Ottawa Accord Compliant), Collection and Analysis of Forensic Data/Material, Production and Analysis of Geospatial Data, Breach or Reduce Complex, Obstacles.



TECHNICAL DESCRIPTION

- 12 Gauge Shotgun High Velocity, High Explosive Cartridge
- The FRAG 12 concept is a niche capability for the Breacher in the unit. The FRAG12 can be used to disable a vehicle at 50-100M by engaging the engine block, disrupting the function of the motor. The FRAG 12 is accurate to a 10 MOA at 100M when fired from a Joint Combat Shotgun with Iron Sights. The use of an Eotech Holograph (or other Visual Augmentation System – VAS) will produce a more accurate MOA.

OPERATIONAL DESCRIPTION

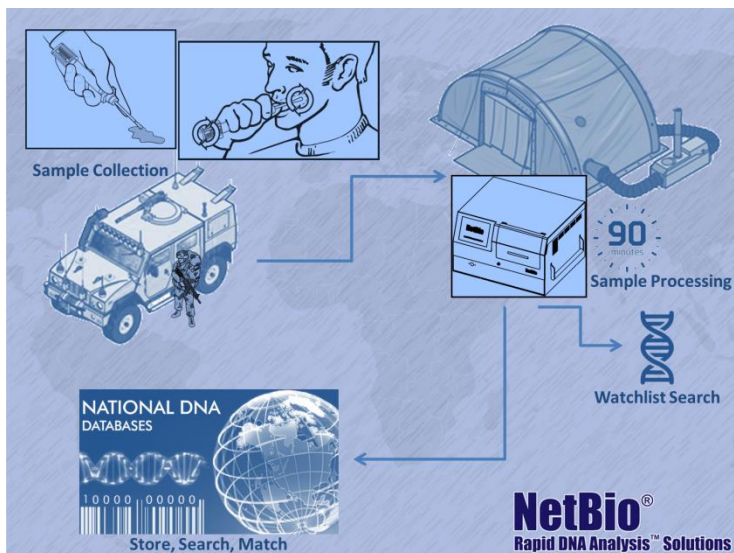
- The FRAG12 HE round is a lethal High Explosive 12 gauge shotgun cartridge that can be deployed against hard targets. The FRAG12 HE can penetrate ¼" Cold Rolled Steel and Level 5 glass at 50 meters and can breach light, medium, heavy wood and metal doors.
- The FRAG12 can be used to disable a vehicle at 50-100M by engaging the engine block, disrupting the function of the motor. The FRAG 12 is accurate to a 10 MOA at 100M. The use of approved Visual Augmentation System – VAS) will produce a more accurate MOA.

CONTACT INFORMATION

Combined Systems, Inc.
388 Kinsman Rd
Jamestown, PA 16134

POC: Richard Edge
Tel: (727) 932-2177 ext. 139
Email: richardedge@combinedsystems.com

Sponsor – MCoE



TECHNICAL DESCRIPTION

Swab-in, profile-out DNA system for human identification.

- Mobile, MIL-STD ruggedized system processes enrolment and forensic DNA samples in as little as 85 minutes.
- Skill level 1 operator technology. Automated sample processing and data analysis.
- Wide range of sample types: buccal, epithelial, saliva, blood, tissue, bone, teeth.
- Data quality and output compatible with DoD and DoJ authoritative databases.
- Global application: Generate 27-loci STR profiles.

OPERATIONAL DESCRIPTION

Field-forward, fully-automated, and integrated Rapid DNA Analysis system provides sample processing in austere environments.

- Minimizes operational footprint and logistics trails allowing DNA sample processing closer to or at the point of collection.
- Connect to authoritative databases in near real time. Organic storage, searching, matching, and watch-listing capabilities.
- Specialized software for kinship matching and mixture deconvolution.

CONTACT INFORMATION

Federal Resources

235G Log Canoe Circle
Stevensville, MD, 21666

www.federalresources.com

POC: Scott Graham

Tel: (770)-570-0943

Email: scott.graham@federalresources.com

Sponsor – MSCoE



TECHNICAL DESCRIPTION

Complete Encapsulation Device for Evidence Collection:

- Total explosive encapsulation device
- Utilizes open celled foam metals to baffle explosive materials in the event of detonation
- Weighs 170 grams making it ideal for dismounted operations.
- Withstands detonation up to 1.5 grams NEW
- Test tubes integrate to device for other materials to include Chemicals, biological samples, etc.

OPERATIONAL DESCRIPTION

Demonstrate the ability of the Compact Containment Device to be a lightweight evidence collection device used to collect explosive compounds, biological, chemical, or other hazardous materials.

- Prevents soldiers from having to carry cumbersome and expensive analysers in the field.
- Allows soldiers to hand over samples to exploitation professionals vice electronic readouts (the preferred method)
- Integrates to MOLLE of the soldier

CONTACT INFORMATION

Federal Resources

377 Log Canoe Circle
Stevensville, MD 21666

www.federalresources.com

POC: Scott Graham

Tel: (770) 570-0943

Email: scott.graham@federalresources.com

Sponsor – MSCoE

TECHNICAL DESCRIPTION

The SEEKERe combines colorimetric technology with an automated imaging system to reduce human error.

- Detects the explosive families: Nitroaromatics, Nitrate esters and Nitramines, Inorganic Nitrates, Chlorates, and Peroxides.
- Detects the narcotics: Opiates, Meth, Cocaine, THC, Ketamine, Synthetic Cannabinoids, and others
- Ready from a cold start in 25 seconds
- Results in under 60 seconds

OPERATIONAL DESCRIPTION

The SEEKERe permits the operator to rapidly assess and identify bulk and trace amounts of explosives and narcotics. The system requires very little training and utilizes very inexpensive sample cards to collect the sample.

- Real time, accurate results.
- Fills the trace detection capability gap presented by current spectroscopy instruments.
- Automatically records results, GPS location, altitude, temperature, and user info
- No "down time" between samples

CONTACT INFORMATION**Federal Resources**

235-G Log Canoe Circle
Stevensville, MD 21666

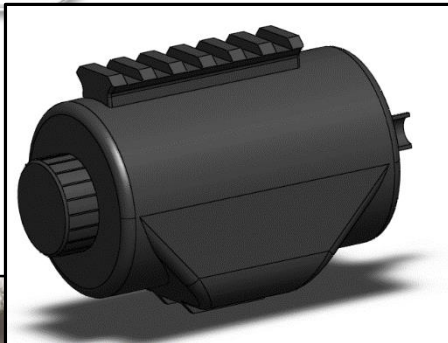
www.federalresources.com

POC: Scott Graham

Tel: (770) 570-0943

Email: scott.graham@federalresources.com

Sponsor – MSCoE



TECHNICAL DESCRIPTION

Linear Explosive Disruptor: Tool fires a shape charge where the detonation event is contained within a blast chamber thereby allowing the tool to be fired from a robot. Tool is also recoilless making it ideal for remote chemical weapon operations and EOD precision aim.

- dihedral copper liner
- weighs less than 1.5 pounds
- fires 15mm shape charge for burn thru
- integrated blast chamber contains detonation
- barrel provides increased accuracy for high speed disruption of dispersion type WMD devices.

OPERATIONAL DESCRIPTION

Demonstrate the ability of the Linear Explosive Disruptor to strike a component within an IED (configured as a WMD dispersion device). In addition, demonstrate the capability of the tool to be recoilless and mount it to an ROV thereby illustrating the use of the tool for remote CBRNE response operations.

- Integrates to EOD tool kits for enhanced WMD response
- Place on a robot for remote CBRNE operations

CONTACT INFORMATION

Federal Resources

377 Log Canoe Circle
Stevensville, MD 21666

www.federalresources.com

POC: Scott Graham

Tel: (770) 570-0943

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Sponsor – MSCoE



TECHNICAL DESCRIPTION

The Gemini combines the capabilities of both Raman and FT/IR spectroscopy into one handheld instrument.

- Raman uses a variable power (75-250mw) 785nm laser
- Spectral Range FTIR: 4,000 cm^{-1} to 650 cm^{-1}
- Raman: 250 cm^{-1} to 2875 cm^{-1}
- FT/IR features a variable pressure sample crusher
- Powered by an internal rechargeable batter, CR123 batteries or external A/C.
- Reachback assistance available
- MIL-STD 810G certified

OPERATIONAL DESCRIPTION

The Gemini provides the operator with the rapid analysis of chemicals, explosives, narcotics and hazardous materials via Raman and FT/IR Spectroscopy.

- Real time, accurate results.
- Reduces equipment footprint of EOD and CBRN personnel.
- Fully immersible in water or decon solution
- Extensive Library contains ~14,000 chemicals
- Greatly reduces time on target over other spectroscopy instruments

CONTACT INFORMATION

Federal Resources

235-G Log Canoe Circle
Stevensville, MD 21666

www.federalresources.com

POC: Scott Graham

Tel: (770) 570-0943

Email: scott.graham@federalresources.com

Sponsor – MSCoE

TECHNICAL DESCRIPTION

The Rapid Access Munition (RAM) is a 40 x 46mm cartridge with a mechanical PIBD fuze and High Explosive (HE) warhead. The RAM can be fired from the M320 and M203 GL.

Length: 6.24 inches

Weight: 0.55 pounds

Recoil: 19-45 ft-lbs. Weapon configuration dependent

Minimum Firing Range: 15 meters

Maximum Firing Range: 50 meters

Maximum Firing Angle 60 degrees

Frag's toward shooter: None

OPERATIONAL DESCRIPTION

The 40mm Rapid Access Munition (RAM) allows the grenadier to conduct a ballistic breach of an existing door, creating an entry point into a building or other urban structure.

- Allows small units to quickly gain access to buildings.
- Allows for remote ballistic reduction of door without need to have breaching element at entry point.
- Reduces exposure to enemy observation/fire.
- Increases ability to effectively breach buildings without exposing friendly forces to unnecessary risks.

CONTACT INFORMATION

Chemring Ordnance Inc.

10625 Puckett Rd

Perry, FL 32348

www.chemringordnance.com

POC: Bobby Boatwright

Business Development Manager

Tel: 850-584-2634 Ext 280

850-295-1275 Cell

Email: bboatwright@chemringordnance.com

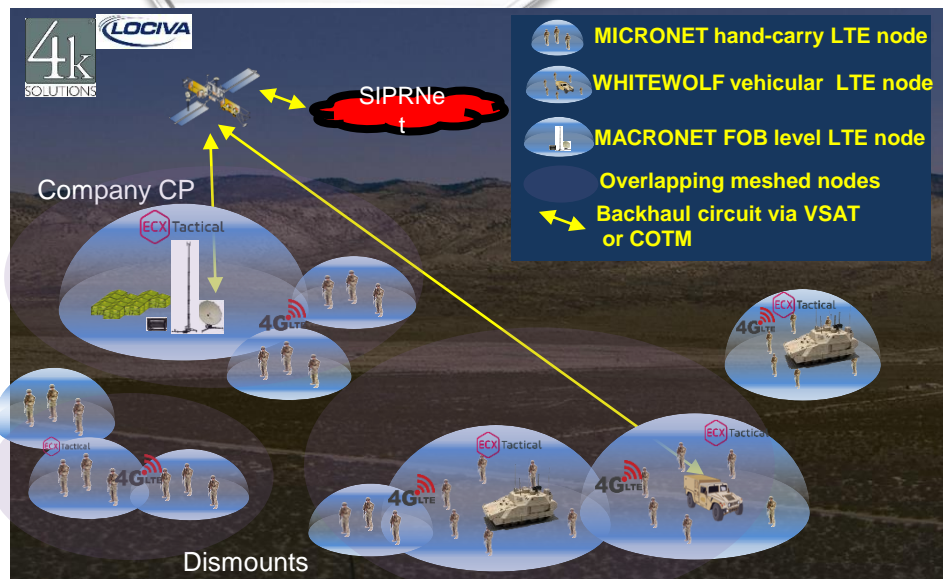
Sponsor - MCoE

Expeditionary Tactical Network

LEAD – Cyber CoE

Experiment Objective #5: How do we engineer the tactical network to maximize bandwidth efficiency, enable dynamic reconfiguration, and improve cybersecurity, while becoming expeditionary? (AWFC 7)

Examples: Decreased Network Complexity Without Loss of Range, Simultaneous Use of Multiple Networks on Different Bands, Joint Interoperability Support.



TECHNICAL DESCRIPTION

Rapidly deployable 4G/LTE

- 64 to 300 simultaneous active packet sessions
- RF Module 2 x 2 MIMO options
- Single Band RF Module (2 x 1W) – Band 17 or 28
- Any other RF Band – Custom Development
- Embedded LTE modems for LTE mesh support
- Small Form Factor
- Low Power Consumption
- Uplink/Downlink throughput 70/30 Mbps, 100/30 Mbps

OPERATIONAL DESCRIPTION

-Auto-sensing and meshing:

As nodes move into proximity with each other they automatically establish 4G/LTE backhaul links enabling each node to cross-pollinate user databases, and are able to take advantage of any backhaul circuits.

Scalable – man-packable, to vehicular/ISR platform, to FOB level nodes. All working seamlessly and dynamically as nodes move across the battlespace.

-VSAT Backhaul (fixed or COTM)

CONTACT INFORMATION

4K Solutions LLC

11255 Rambling Trail

Midland GA 31820

www.4kSolutions.com

POC: Susan Fillingham

Tel: (910) 303-1787

Email: susan@4ksolutions.com

Sponsor - MCoE

TECHNICAL DESCRIPTION

GoTenna is a hardware device that pairs with iOS and Android devices to enable them to communicate critical messages and GPS coordinates without any reliance on central infrastructure. GoTenna enables military-grade tactical field communications in all environments with unprecedented low costs, low weight, and unrivaled system simplicity.

**OPERATIONAL DESCRIPTION**

GoTenna reduces the need for each Soldier to carry a tactical radio to have SA and C2 capability. Utilizing plug-ins or applications within systems like Nett Warrior, GoTenna can provide the ability to share PLI / Chat / and other capabilities without the need for tactical radios at ranges equivalent to that of current SRW radios at reduced SWaP.

CONTACT INFORMATION**Sponsor Info**

Program Manager Soldier Warrior

POC: MAJ David Bergmann

Assistant Product Manager Ground Soldier Systems

Tel: (703) 704-2968

Email: david.h.bergmann.mil@mail.mil

Company Info**GoTenna**

81 Wiloughby Street, Suite 302

Brooklyn, NY 11201

POC: Jorge Perdomo

Email: jp@gotenna.com



TECHNICAL DESCRIPTION

The HUNTR head tracker weighs 7.5 oz and mounts to the left side of a standard ACH (size Large), replacing the COTS side rail. The daytime HUD weighs 8.5 oz and mounts to the ENVG-II HMA on the front of the ACH. The HUNTR system interfaces to the provided daytime HUD or to an ENVG-II (AN/PSQ-20A) for heads-up SA in low-light situations.

OPERATIONAL DESCRIPTION

HUNTR improves situational awareness with icons and graphics that are visible within the user's field of view (FOV) and with the Nett Warrior (NW) end user device (EUD) by using and see-through heads-up display or the ENVG II (AN/PSQ-20A), during hours of limited visibility. Menu items are selected and navigated with a three button array or activated by voice using a boom microphone collocated with the system of the left side of the ACH. The HUNTR system reduces the need for the user to look down at the EUD or open the EUD pouch.

CONTACT INFORMATION

**Night Vision & Electronic Sensors Directorate, US
Army RDECOM CERDEC**
10221 Burbeck Rd
Fort Belvoir, VA 22060

POC: David A. Randall
Tel: (703) 704-1159
Email: david.a.randall18.civ@mail.mil

Sponsor – PM SWAR

**TECHNICAL DESCRIPTION**

A 'smart' radio with onboard Android OS utilizing the Wave Relay Mobile Ad hoc Network (MANET) that:

- 3x3 Multi-Input Multi-Output (MIMO) for increased range and extended throughput
- Intelligent Radio over IP Tether feature to LMR radios such as 117G
- Provides Push to Talk (PTT) over 16 switchable talk groups
- Stream live HD audio and video

OPERATIONAL DESCRIPTION

Demonstrate an ability to provide full motion video (FMV), high bandwidth data, and voice to the tactical edge of the battlefield. Enables leaders to make better decisions faster by increasing their access to sensor data.

- Supports complex RF environments (dense vegetation, urban, subterranean, etc)
- Provide access to sensor video streams
- Plug and play to other sensors and technologies
- Support communication between different networks to support operations with multiple organizations

CONTACT INFORMATION**Persistent Systems**

303 Fifth Avenue Suite 306
New York, NY 10016

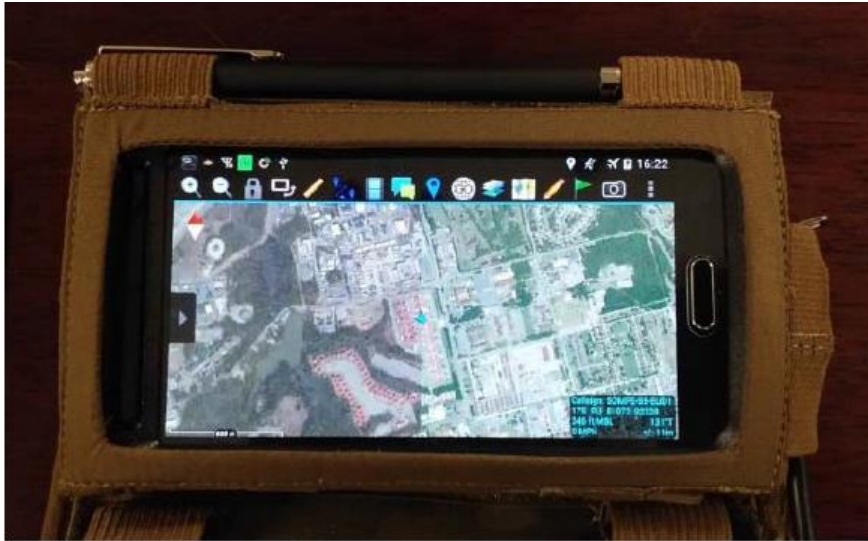
www.persistentsystems.com

POC: Brian Soles

Tel: (646) 518-8902

Email: bsoles@persistentsystems.com

Sponsor – PM SWAR

**TECHNICAL DESCRIPTION**

The Android Tactical Assault Kit (ATAK) is a tactical SA and C2 application developed by the Air Force Research Laboratory (AFRL). The software application runs on any Android operating system using version 4.0.4 or later. It supports planning and executing missions; airborne operations; close air support; and medical evacuation requests. Users can plan routes and navigate with GPS and National Geospatial Agency (NGA) map data, and gather intelligence. ATAK is currently deployed to Special Operations forces.

OPERATIONAL DESCRIPTION

Currently, units lack a fully integrated mission command network that can bring aerial and ground sensor data to the dismounted leader to enable mission command and complete the common operational picture (COP).

Providing the OPFOR with ATAK and / or NWFI SW provides the opportunity to replicate a near-peer OPFOR as well as get additional operational feedback on dismounted SA / C2 applications.

CONTACT INFORMATION

Program Manager Soldier Warrior
10125 Kingman Rd., Bldg 317
Fort Belvoir, VA 22060

POC: MAJ David Bergmann
Assistant Product Manager Ground Soldier Systems
Tel: (703) 704-2968
Email: david.h.bergmann.mil@mail.mil

End User Device



ARMY Supplied Transport Layer



Power



Cables & Connector



Chest Pouch



Capacitive Gear



OPERATIONAL DESCRIPTION

PdM Ground Soldier focuses on the development of Situational Awareness and Mission Command capabilities for the dismounted leader. Nett Warrior (NW) has the ability to graphically display the location of an individual leader's position, as well as the positions of other NW equipped leaders, on a digital geo-referenced map image. NW is connected through a secure radio capable of sending and receiving data and position location information from one NW to another. NW will increase the leader's Situational Awareness and Command & Control capabilities, while greatly reducing the potential for fratricide.

TECHNICAL DESCRIPTION

- **Platform:** Android OS smart device (device agnostic)
- **Network Agile** (IP mesh network based capability)
- **GIG (Global Information Grid) Access:**
NW provides standard VMF messages and leverages existing BFT gateways (JBCP & JCR) to populate SA data on C2 networks.
- **DIACAP (DoD Information Assurance Certification and Accreditation Process):**
The NW system is accredited to process and store data up to the Secret level.
- **ATO (Authority to Operate):**
The NW system has a full ATO (v2.0.4)

CONTACT INFORMATION

PM Soldier Warrior (PM SWAR)

10125 Kingman Rd., Bldg 317
Fort Belvoir, VA 22060

POC: MAJ David Bergmann

Tel: O: (703) 704-2968; BB: (571) 255-9722

Email: david.h.bergmann.mil@mail.mil

Sponsor – PM SWAR



TECHNICAL DESCRIPTION

- LoS and BLoS IP Networking for VHF/UHF/HF radios
- Small rugged portable MIL-STD device that IP enables legacy tactical radios, including SINCGARS
 - Error-Free Message Delivery
 - Automatic re-transmission protocol closes the link
 - Adaptive Forward Error Correction
 - Real-Time Message Compression
 - Simple set and forget configuration
 - Available for Windows, Linux and Android OS
 - USB interface to NETT Warrior
 - Combat proven technology for 20+ years

OPERATIONAL DESCRIPTION

Demonstrate the ability to seamlessly enable Nett Warrior EUD to interface with legacy SINCGARS tactical radios to provide IP network coverage area for Air, Vehicular and Ground Dismounted Operations

- Maps (Add Map Item)
- Place Sensor
- Plot Chemlights
- Plot GRG
- Plot IED
- Plot SAG
- Free Text
- Message Center

CONTACT INFORMATION

ViaSat Inc.

6155 El Camino Real
Carlsbad, CA 92009

<https://www.viasat.com>

POC: Marty Conrad

Tel: (760) 522-4482

[Email: marty.conrad@viasat.com](mailto:marty.conrad@viasat.com)

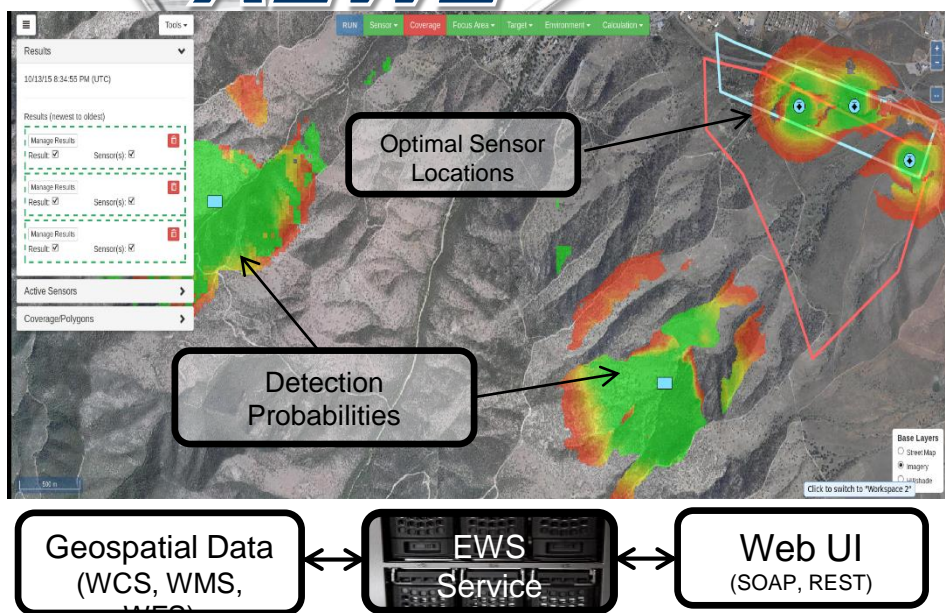
Sponsor – CCoE

Situational Understanding

LEAD –ICoE

Experiment Objective #6: How do we develop and sustain a high degree of situational understanding while operating in complex environments against determined, adaptive enemy organizations? (AWFC 1)

Examples: Operations/Intelligence Convergence, Sensor Computing Environment (Sensor CE), Distributed PED and Analysis, Extend and Evolve the Intelligence Enterprise.



TECHNICAL DESCRIPTION

Environmental Awareness for Sensor and Emitter Employment (EASEE) Web Service (EWS)

- Provides high-fidelity, weather and terrain impacted, human audibility, sensor performance, and optimal sensor placement planning capabilities using enterprise service architecture.
- Data products can be accessed using a dedicated Web UI or 3rd parties using web service protocols.
- Leverages open-source Geographic Information System (GIS) software to ingest terrain data from any Open Geospatial Consortium (OGC)-compliant web service provider and publish products.

OPERATIONAL DESCRIPTION

Operator uses EWS Web UI from any web browser (desktop or mobile) to:

- Configure tactical scenarios
- Request sensor performance, vulnerability and placement results from the service

WebUI employs:

- Imagery via Web Mapping Service (WMS)
- Terrain via Web Coverage Service (WCS)

WMS/WCS data services can be provided by:

- Local (1st Party) Geoserver instance
- Shared (Enterprise) OGC-compliant server

CONTACT INFORMATION

Atmospheric and Environmental Research, Inc.

131 Hartwell Avenue
Lexington, MA 02421

www.aer.com

POC: Christian Borden

Tel: (781) 761-2295

Email: cborden@ aer.com

Sponsor – ICoE

Other



TECHNICAL DESCRIPTION

- Weapons Effects Simulator
- Five effects on a circuit board of 4in by 4in
- Produces a flash and 140db bang
- Can fire single shots, burst fire or simultaneous fire
- Electronically initiated wirelessly or manually
- Hazard Class 1.4G
- Unit can be powered through battery or hardwired source
- MILES compatible

OPERATIONAL DESCRIPTION

Macropyro is a system used to simulate fire in MOUT areas. It is a one man setup that is easy to reload. Unit is fired through a wireless PDA or other manual means. Effect produced is a flash bang with a smoke cloud

Used to simulate:

- Booby traps
- Hostile fire
- IED simulation
- Gun fire

CONTACT INFORMATION

ARDEC

Building 3124
Picatinny, NJ 07806
Pica.army.mil

POC: Mark Kuperus

Tel: (973) 724-4569

Email: charles.m.Kuperus.civ@mail.mil

Sponsor – MCoE



TECHNICAL DESCRIPTION

- Indoor Weapons Effects Simulator
- Eleven effects on a circuit board of 107mm by 50mm
- Produces a flash and 140db bang
- Can fire single shots, burst fire or simultaneous fire
- Electronically initiated wirelessly or manually
- Hazard Class 1.4G
- Unit can be powered through battery or hardwired source
- MILES compatible

OPERATIONAL DESCRIPTION

Micropyro is a system used to simulate fire indoors. It is a one man setup that is easy to reload. Unit is fired through a wireless PDA or other manual means. Effect produced is a flash bang with a little smoke.

Used to simulate:

- Booby traps
- Close proximity indoor effects
- Gun fire

CONTACT INFORMATION

ARDEC

Building 3124
Picatinny, NJ 07806

Pica.army.mil

POC: Mark Kuperus

Tel: (973) 724-4569

Email: charles.m.Kuperus.civ@mail.mil

Sponsor – MCoE

TECHNICAL DESCRIPTION

- NSN: 1370-01-604-6463
- DODIC: LA71
- IHC: 1.4g
- Environmentally benign

**OPERATIONAL DESCRIPTION**

The XM175 Replicates the black smoke from a target kill.

- Visible up to 1800 meters
- Smoke cloud production duration approximately 20 seconds
- Fired from Omega and BESII launchers

CONTACT INFORMATION**ARDEC**

Building 3124
Picatinny, NJ 07806

Pica.army.mil

POC: John Verdonik

Tel: (973) 724-3727

Email: john.j.verdonik2.civ@mail.mil

Sponsor – MCoE

**TECHNICAL DESCRIPTION**

- Compatible with all MILES equipment (HITS)
- Transmits player or weapon ID
- Lethal sector in front approximately 60 degrees
- Simulates impact out to 328 feet
- Light indication during and after simulation
- Operates from cable trigger
- Uses rechargeable 3.6 Li-Io battery, min 200 hour
- Class 1 eye safe laser transmitter
- Weight approx. 4.2 pound
- Dimensions: 10.6 x 6.7 x 3.2 inches with folded legs

OPERATIONAL DESCRIPTION

The MPIMs FOFT simulates a Directed Fragmentation Weapon system. MPIMs FOFT allows Soldiers to “train as they fight” at home station or at one of the National Training Centers in the US. MPIMs FOFT is a MILES/ HITS compatible system (incorporating a Class I eye-safe laser) complemented with pyrotechnics, sound and light effects or other effects as desired. The MPIMs FOFT has an operational area 100m x 100m and 4m. MPIMs FOFT has the capability of being sighted directionally to provide simulated fragmentation lethality over a specific area and a spread angle of 60 degrees.

CONTACT INFORMATION**Forcit**

1650 Misty Plateau Trail
Clearwater, FL 33765

www.forcit.fi

POC: Thomas "Tucker" Campion

Tel: (727) 331-1058

Email: tpm.poseidon@yahoo.com

Sponsor – MCoE

**TECHNICAL DESCRIPTION**

The mobile mortar simulator requires two lap top two desktop computer and the same space needed to set up a standard M224 mortar to evaluate Mortar crews as well as Forward Observer's proficiency for all live fire scenarios. Such as: FO and FDC communication, large/small deflection changes, Laying in mortar sections, registrations and Fire for effect . Additionally an after action review for every conducted shot is available and score card for every student can be implemented . TRL 7

OPERATIONAL DESCRIPTION

The M-IDT will provide 11C instructors and students a hands on solution to evaluate students without the need of a range or expending live ammunition. Additionally Forward Observers and mortar teams in Infantry BCT's can maintain and log individuals and mortar crews on one platform simultaneously prior to actual ranges and deployments. Greatly improve the skill sets of junior leader calling for and adjusting fire and provide FDC/Gun crews valuable rehearsed of communication procedures with maneuver elements they will be supporting during operations.

CONTACT INFORMATION**Saab Bofors Dynamics Switzerland Ltd**

Allmendstrasse 74

CH-3600 Thun

Switzerland

Saabgroup**POC: Kai Schlegel**

Tel: (041) 79-6707086

Email: kai.schlegel@saabgroup.com**Sponsor – MCoE**

29 Total Technologies

6 Government

23 Industry

Combined Arms Maneuver (12)

1. TRX NEON (TRX Systems)
2. INVISIO X50L (TEA Headsets)
3. INVISIO V60 (TEA Headsets)
4. GroundAware (Dynetics)
5. M72 Airburst Fragmenting Warhead (Nammo Talley)
6. M72E8 & E10 Fire From Enclosure (Nammo Talley)
7. Donkey (General Robotics)
8. SEG Folding Suppressor Mount (Federal Resources)
9. Battelle Non-Lethal System (ARDEC)
10. Mounted/Dismounted Common Controls (Bokam Engineering)
11. VTOL Fixed Wing Tactical UAV (Arcturus UAV)
12. EW Hand Grenade (DarkBlade Technologies)

Enhanced Air – Ground Operations (2)

1. DRASTIC (Integrated Solutions for Systems)
2. Warrior SPS (UTC Aerospace Systems)

Small Unit Expeditionary Sustainment (3)

1. Roving Blue BioSensor (Roving Blue)
2. Ultra CombatConnect Vest (Ultra Electronics)
3. Veragon Air to Water Technology (Veragon Water Solutions)

Small Unit Maneuver Support (1)

1. Suprakor Wall Breaching System (Federal Resources)

Expeditionary Tactical Network (2)

1. SFFR-6 Small Form Factor LTE/P25 Tactical Repeater (Etherstack, Inc.)
2. Radio-Over-Satellite L-TAC (TrustComm)

Situational Understanding (3)

1. COMET (Mobile Reasoning)
2. Soldier Portable OsrVT (PM UAS, PdM CSI, and OSRVT APM)
3. Mortar Delivered Unattended Ground Sensors (ARL)

Other/Training (6)

1. M176 Missile Simulator (ARDEC)
2. AM2 VTOL Pad Kit (ERDEC)
3. UAS Surfacing Kit (ERDEC)
4. ready2train Combat Drivers Trainer (Serious Simulations)
5. ready2train Heavy Weapons Trainer (Serious Simulations)
6. ready2train JCAFC&CT (Serious Simulations)

Seamless GPS/GPS denied location and mapping is provided to Nett Warrior EUD Apps and shared between warfighters over soldier radio network.



- Provides 3D location in GPS-denied areas using low cost sensors, without installed infrastructure.
- User wears small tracking accessory and uses Nett Warrior Maps interface for viewing team location.
- Sensor fusion, peer to peer ranging and inferred mapping enables seamless 'track through' capability
- Inferred maps provide automated corrections to the user location enabling longer duration tracking.
- Ranging provides reliable relative positions within the squad which do not diminish over time.
- Participated in AEWE Spiral J and K

GPS-Denied Navigation and Mapping Solution enhances command and small team situational awareness

- Delivers reliable GPS-denied relative positions to team and to command in indoors and subterranean environments (Objective 1 and 6)
- Provides local ad-hoc network to share location improving situational awareness (Objective 1 and 6)
- Enables improved team location. A user's location (e.g. SAASM GPS) can be referenced (using peer to peer ranging) to provide team location.
- Provides map intelligence gathering capability when simply walking through a facility (Objective 6).

TRX Systems, Inc.

7500 Greenway Center Drive, Suite 420

Greenbelt, MD 20770

www.trxsystems.com

POC: Carole Teolis

Tel: (301) 523-2650

Email: carole@trxsystems.com

Sponsor – ICoE

**TECHNICAL DESCRIPTION**

- NSN: 1370-01-603-0690
- DODIC: LA70
- FHC: 1.4g
- Environmentally benign

OPERATIONAL DESCRIPTION

The M176 Replicates a MANPADS launch.

- High density smoke with low illumination
- Self Consuming Pyrotechnic Pellet
- Smoke cloud altitude of 550 feet +/- 50feet
- Part of the MAST-WESS system

CONTACT INFORMATION

ARDEC

Building 3124
Picatinny, NJ 07806

Pica.army.mil

POC: John Verdonik

Tel: (973) 724-3727

Email: john.j.verdonik2.civ@mail.mil

Sponsor – MCoE



TECHNICAL DESCRIPTION

Invisio X50L Modular X5 Control Unit

- Certified Hearing Protection
- Enhanced Electronic Situational Awareness for Soldiers not requiring Radio Communications
- Utilizes the same X5 In-Ear headset as the Invisio V60 and TCAPS approved Invisio X50 systems so that the Soldier can retain his same headset once he requires radio communications and upgrades to the Invisio V60 or X50 systems.
- Precise sound localization for situational awareness
- Available in Black or Tan

OPERATIONAL DESCRIPTION

- Provides certified hearing protection rated at SNR 32dB and NRR 29dB (X5 headset fully tested and certified by ARL & AFRL for the US Army TCAPS program)
- Advanced digital signal processing, miniaturized audio components and ergonomic headset design provide the most natural hearing possible in extreme conditions
- Enhanced Situational Awareness.
- Uses Single common AA Lithium-Ion Battery for 50 hours operating time

CONTACT INFORMATION

TEA Headsets

16 Mount Ebo Road South, Ste. 6
Brewster, NY 10509

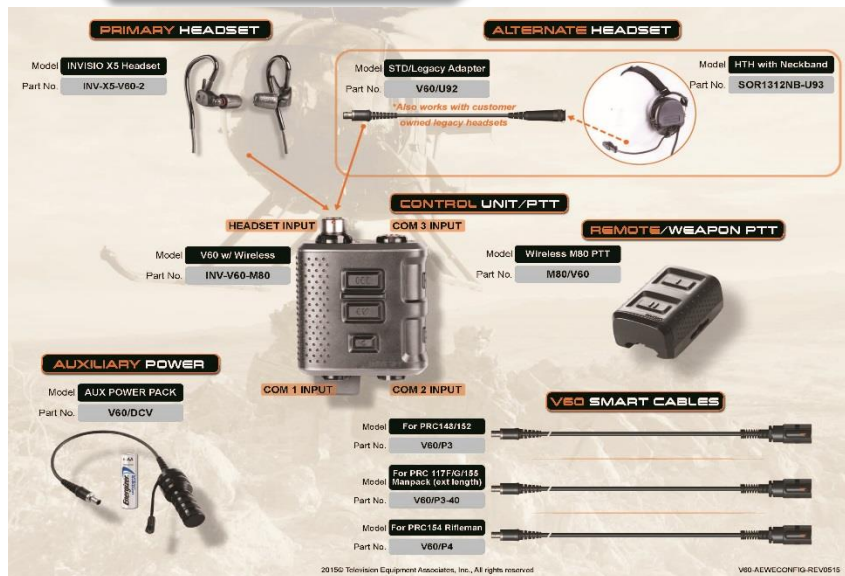
www.teaheadsets.com

POC: Russ Bell

Tel: (706) 846-3515

Email: russ@teaheadsets.com

Sponsor – CCoE



TECHNICAL DESCRIPTION

Advanced Tactical Communication and Hearing Protection System

- Lightest quad-com control unit, 20M submersible
- Listen and talk simultaneously on 4 channels; to include urban & maritime 2-channel radios (PRC-148B (V)1 & (V)2 and PRC-154, etc.)
- Ultimate Soldier hub for virtually all radios, ICS, Mobile devices, computers using any legacy & future headset
- Completely modular with breakaway connectors to improve Soldier safety
- Precise sound localization for situational awareness

OPERATIONAL DESCRIPTION

Supports full radio functionality during all mission profiles for both the mounted and dismounted Soldier.

- Radio communication with continuous and unimpeded hear-thru in both ears.
- Provides certified hearing protection rated at SNR 32dB and NRR 29dB (Fully tested and certified by ARL & AFRL for the US Army TCAPS program).
- Advanced digital signal processing, miniaturized audio components and ergonomic headset design provide the most natural hearing possible in extreme conditions.
- Crystal clear communication with enhanced SA.

CONTACT INFORMATION

TEA Headsets

16 Mount Ebo Road South, Ste. 6
Brewster, NY 10509

www.teaheadsets.com

POC: Russ Bell

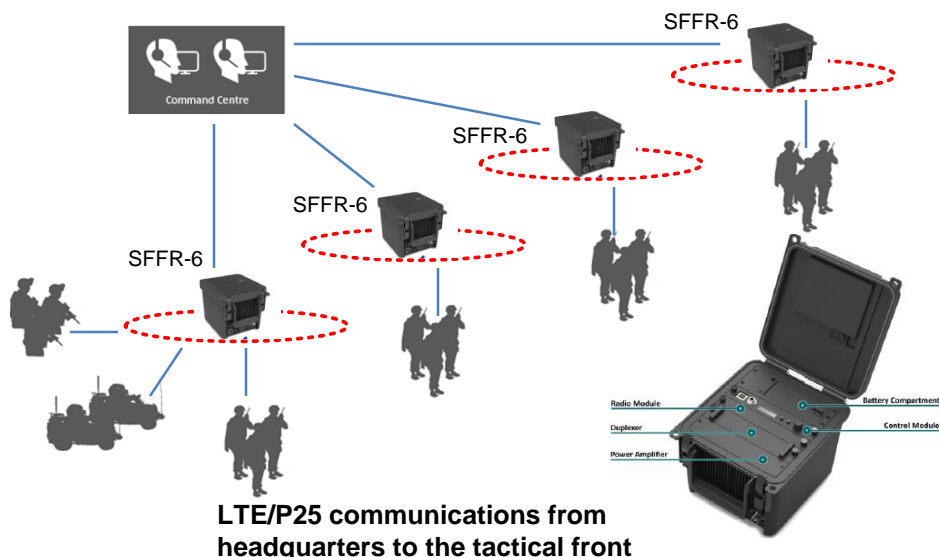
Tel: (706) 846-3515

Email: russ@teaheadsets.com

Sponsor – CCoE

TECHNICAL DESCRIPTION

- Smallest Form Factor LTE/P25 Tactical Repeater
- Compatible with P25 Harris/Thales radios e.g. Falcon III
- Supports end-to-end AES-256 & Type-one pass through encrypted traffic
- VHF/UHF cross band via multiple units
- Networkable via IP, 3G/4G, Satcom (Viasat/BGAN)
- Self Powered with AC/DC backup/recharge - Hot swappable COTS laptop batteries
- Remote management, diagnostics & configuration
- Only single hand, self powered, network solution avail
- Full environmental & ruggedized design (IP67)



OPERATIONAL DESCRIPTION

The SFFR-6 is an LTE/P25 tactical repeater able to deliver wireless networking capabilities to the battlefield and provide a complete, standalone solution for deployments from headquarters to the tactical front.

- Rapid deployment on hilltops, buildings, airbases or airborne (heli) for creation of a networked P25 cell
- Allows COTS P25 radios in use by US & foreign forces to interwork with in-service Army radios
- Multiple units can be networked together anywhere in the world to create a secure tactical radio network
- Remote data/sensor information transfer

CONTACT INFORMATION

Etherstack Inc

1115 Broadway, 12th Floor

New York, NY 10010

www.etherstack.com

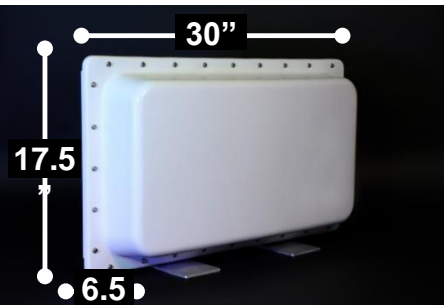
POC: Chris Kammermann

Tel: (757) 218 1453

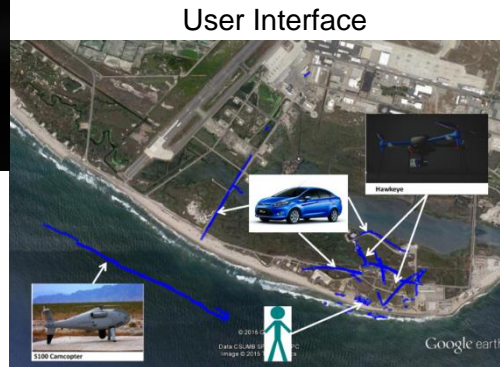
Email: chris.kammermann@kapkom-us.com

Sponsor - None

Withdrawn: 30 Mar 16 – CCoE did not want to sponsor and no requirements for the network.



GroundAware™ Radar



User Interface

TECHNICAL DESCRIPTION

- Pulse-doppler S-band, 120° FOV, 5-40km scalable range
- 2m range accuracy; 1.5° azimuth accuracy
- Software defined update rate (default 4hz)
- Software defined waveform/center frequency in 3.1-3.39 GHz
- 0.5 m/s minimum detect velocity
- Classification of humans, animals, vehicles, aircraft
- Open architecture easily integrated with other systems
- Web services based UI – no software to install
- Windows/Linux/Mac/Android,iOS compatible
- FCC certified and licensed; TRL 8

OPERATIONAL DESCRIPTION

Demonstrate simultaneous detection, tracking, and classification of humans, vehicles, and UAS integrated on a single interface

CONTACT INFORMATION

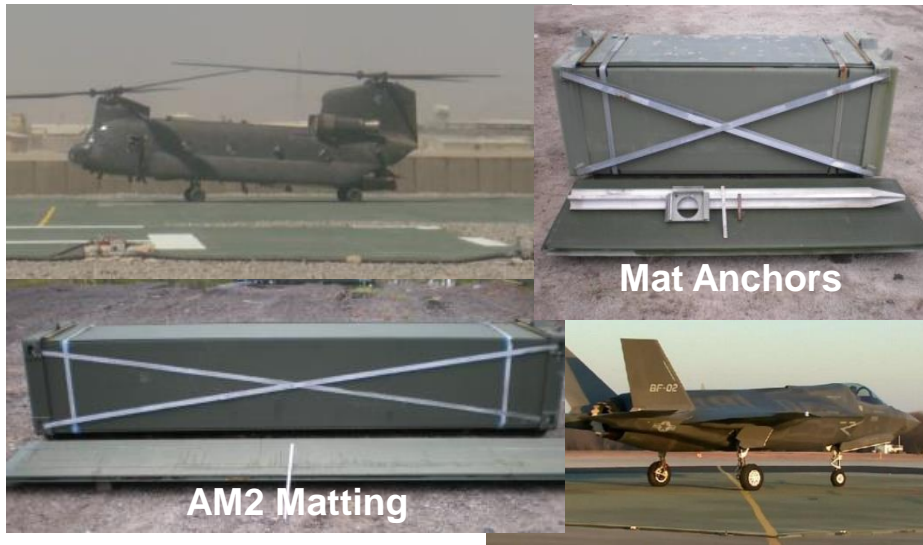
Dynetics, Inc
1002 Explorer Boulevard
Huntsville, AL 35806
www.Dynetics.com

POC: Mike Stokes
Tel: (256) 682-0342
Email: mike.stokes@dynetics.com

Sponsor – MCoE/ICoE/FCoE

TECHNICAL DESCRIPTION

- AM2 VTOL Pad Kit
 - 96 ft x 96 ft VTOL pad
 - Edge Stakes and Anchors
 - Most robust matting system
 - Soft soil installation
 - FOD cover / Dust cover
 - Installed without MHE
 - Simple installation
 - Used by Army, USMC, USAF
- Optimized packaging to meet Army requirements
 - Complete w/edge stakes, anchors, and installation tools



OPERATIONAL DESCRIPTION

- Solution for rapid deployment of VTOL pad for soft soil (or any other) installation
- Reusable system to support rapid mobility

CONTACT INFORMATION

ERDEC

3909 Halls Ferry Rd
Vicksburg, MS 39180

POC: Timothy Rushing

Tel: 601-634-2858

Email: Timothy.W.Rushing@usace.army.mil

Sponsor – MSCoE/AVCoE



TECHNICAL DESCRIPTION

- Kitted AM2 package as immediately-available GOTS solution (variation of VTOL kit)
- Alternative lower-logistics solutions to fully inform evolving Requirements

OPERATIONAL DESCRIPTION

- Logistically optimized kit for rapid deployment of UAS surfacing
- Reusable system to support rapid mobility
- Provides all-weather operational capability for unsurfaced airfields and reduces potential foreign object debris damage

CONTACT INFORMATION

ERDEC

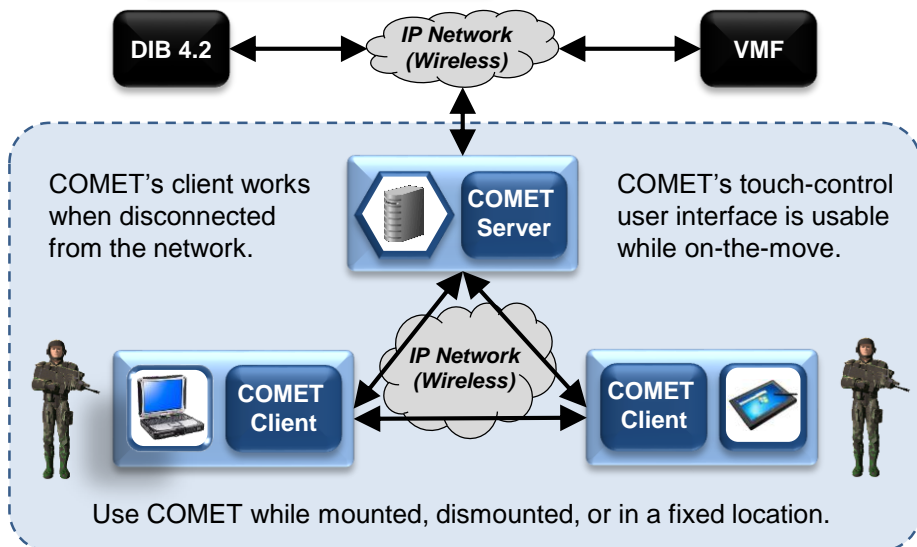
3909 Halls Ferry Rd
Vicksburg, MS 39180

POC: Timothy Rushing

Tel: 601-634-2858

Email: Timothy.W.Rushing@usace.army.mil

Sponsor – MSCoE/AVCoE



TECHNICAL DESCRIPTION

COMET App Suite for Tactical Intel OTM (“COMET”) is an integrated set of tactical applications designed to support small unit tactical intelligence activities:

- Enables a CoIST to operate in a fixed location, mounted, or dismounted on-the-move (OTM);
- Functions while disconnected from the tactical network by using a wireless mobile architecture;
- Supports stylus-free use of its fully touch-control user interface while on-the-move in a vehicle;
- Integrates with Nett Warrior Future Initiative (NWFI) using VMF, KML, and the NWFI File Transfer App.

OPERATIONAL DESCRIPTION

COMET provides key information management, display, alerting, analysis, planning & dissemination functions for select aspects of these tactical intelligence tasks:

- Support to Situation Understanding (ART 2.2)
 - Intelligence preparation of the battlefield (IPB)
 - Situation development
- Perform ISR (ART 2.3)
 - Synchronization and integration tasks
- Support to Targeting (ART 2.4)
 - Lethal and nonlethal targeting tasks

CONTACT INFORMATION

Mobile Reasoning, Inc.

15737 W 100th Terrace

Lenexa, KS 66219-1285

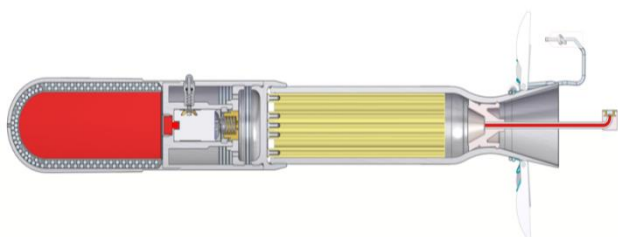
<http://www.mobilereasoning.com>

POC: Scott Bublin

Tel: (913) 226-3919

Email: bublin@mobilereasoning.com

Sponsor – ICoE



Single Shot M72E11 Frag WH



TECHNICAL DESCRIPTION

- M72E11 AB/Frag Warhead
- Programmable Air-burst or Point-Det, fragmenting warhead with 0.8 lbs of IM explosive fill
- Burst Radius: Impact 12m+; Air-burst ~15-20m
- 3,000+ lethal frags: deep penetration in 10% ballistic gel @ 12 meters
- Range 600+ meters
- PIP to existing M72 family of weapons.
- ≤ 12 pound total system weight, 30 inches long
- M72E11 AB is at TRL Level 6

OPERATIONAL DESCRIPTION

- Provides dismounted Soldiers a lightweight, shoulder fired anti-personnel fragmentation round
- Increase individual Soldier/squad organic firepower
- Improved low weight launcher with on-axis trigger
- Delivers 0.8 lbs of explosive surrounded by preformed Tungsten alloy fragments
- Capable of defeating in defilade or behind walls
- Capable of defeating personnel in the open, in defilade, or behind walls
- Leverages current training for M72 LAW systems

CONTACT INFORMATION

Nammo Talley Inc.

4051 N Higley Road

Mesa, AZ 85215

www.nammo.com

POC: John Johnson

Tel: (480) 898-2449

Email: jjohnson@nammotalley.com

Sponsor - MCoE



M72 Fire From Enclosure (FFE)



M72A9 Round & Launcher

TECHNICAL DESCRIPTION

- Upgrade to current M72 LAW AA & ASM rounds
- Fully compliant Fire From Enclosure propulsion – improves Soldier survivability in MOUT environments
- Lightweight, compact, single shot, disposable
- Improved dual safe fuze, IM explosive fills
- E10 ASM autonomous dual mode delay for multi-target capability
- 12.9 pounds system weight, 32” long
- M72 FFE system level TRL 8-9

OPERATIONAL DESCRIPTION

- Fire from Enclosure, > 5 Shots/Day with single hearing protection, below “Z” curve
- Significant reduction to noise, visual signature, and back-blast hazards
- $P_{hit} > 0.5$ @ 250m on 1.5m x 1.5m target
- Anti-Armor E8 Penetration > 6” RHA
- Anti-Structure E10 effective against single brick/CMU, SC Wood Doors, 12” Adobe, 8” DRC, E&T bunker, light vehicles and similar targets; delivers 1.4 lbs of HE on target

CONTACT INFORMATION

Nammo Talley Inc.

4051 N Higley Road

Mesa, AZ 85215

www.nammo.com

POC: John Johnson

Tel: (480) 898-2449

Email: jjohnson@nammotalley.com

Sponsor - MCoE

TECHNICAL DESCRIPTION

The Donkey is a light weight (47Kg) collapsible platform designed for rapid deployment at the field. The Donkey can be hung on or stowed inside vehicles for easy transport. The Donkey is deployed in seconds (like opening a stretcher). The Donkey can carry various payloads (up to 100 Kg) to a distance of 20 Km. A 4X4 electric hub allows for discrete driving and operation. “As if you are there” driving experience – 8 video cameras, 5 real time video channels. Simple operators interface based on a Panasonic Toughpad and a customized operation jacket provide enhance situational awareness and control.



OPERATIONAL DESCRIPTION

The Donkey is a multi-role collapsible robotic platform designed for a range of missions:

- Route Opening – the Donkey can be remotely driven ahead of friendly forces into hostile environments. A sensors suite allows for threat detection; connectivity to payloads such as robotic arms, LWS as well as other peripherals enables threat engagement.
- Payload Carrier – from supplies to EW equipment, the Donkey can carry up to 100 Kg. Integral “follow the leader” capability is embedded in the platform.
- Discrete patrol, reconnaissance and surveillance.

CONTACT INFORMATION

General Robotics Ltd.

Meshek 80 St.

Moshav Beit Nechemya, Israel 7314000

www.grobotics.com

Technical POC: Roy Levy

Tel: (917) 488 8299

Email: roy@grobotics.com

Sponsor – MCoE

TECHNICAL DESCRIPTION

- Universal fold away hinge not limited to SEG Suppressors.
- Instant push button fold away of suppressor.
- Field serviceable.
- Quicker disconnect after high heat fire. (without tools or damaging equipment)
- Red hot suppressors cant be handled, put in a pack or a pocket. This provides a solution that doesn't require leaving the suppressor behind.
- Designed to protect the suppressor and rifle when drop tested. The latch and plunger are replaceable with three screws total.



OPERATIONAL DESCRIPTION

Typically suppressors attach to barrels using high tolerance threads to perfectly align the bores. A QD/Quick disconnect was desirable, but the current solutions use male and female tapers that get stuck when hot.

- With a push of your hand, your suppressor can be snapped in place for quicker acquisition of target.
- Provides the best place to store a hot suppressor. Like a folding stock.
- Easier to disconnect suppressor when hot.
- Self aligning for accuracy.

CONTACT INFORMATION

Federal Resources

235-G Log Canoe Circle
Stevensville, MD 21666

www.federalresources.com

POC: Scott Graham

Tel: (770) 570-0943

Email: scott.graham@federalresources.com

Sponsor – MCoE



TECHNICAL DESCRIPTION

- A novel non-Lethal weapon system from Battelle.
- Small, light-weight launcher.
- Stand-alone or mounted under M4 / M16.
- Fires Battelle's unique ammunition called the *Caseless Telescoping Non-Lethal Munition*.
- Has 3 velocity settings (Low – Med – High).
- 7-round magazine capacity.

OPERATIONAL DESCRIPTION

- Three velocity settings allow this weapon to Non-Lethally engage targets at a variety of ranges.
- The system is small and light-weight.
- Semi-automatic operation.
- The variable muzzle velocity extends the useful range envelope of the system and allows Soldiers to engage targets that would otherwise be too close or too far away for traditional fixed-muzzle velocity to have the desired non-lethal effect.

CONTACT INFORMATION

ARDEC

Buidling 65N

Picatinny Arsenal, NJ 07806-5000

www.pica.army.mil

POC: Yong No

Tel: (973) 724-4963

Email: yong.w.no.civ@mail.mil

Sponsor – MCoE/MSCOE



TECHNICAL DESCRIPTION

The ready2train™ Combat Drivers Trainer is a full immersion virtual training & mission rehearsal simulator. It consists of *Proprietary and COTS hardware and software to fully data capture Soldiers, vehicles, and weapons, *10'x10' or greater 6 DOF tracking area, *Instructor Operating/AAR station. *3D VR displays enable true peripheral vision. Features: *Wireless HD Technology, *Artificial Intelligence, *Widest FOV Helmet Mounted Display (130 degree field of view true 3D), *Wireless Video, (Lower PC upgrade cost and max use of VBS2 , VBS3, Unreal, Unity etc.) TRL # 9

OPERATIONAL DESCRIPTION

The ready2train™ Combat Drivers Trainer provides a fully immersive drivers training and rehearsal tool enabling Soldiers to rehearse tactical driving techniques & procedures in a Virtual Situation Training Exercises (STXs) using natural human motion and skills. The Capability is a prototype and is intended to be applied to any combat vehicle. Wrap around VBS3 Simulation with seamless transitions to Mounted Operations. AARs and rapid re-cock are all part of the capability.

CONTACT INFORMATION

Serious Simulations, LLC

3251 Progress Dr.

Orlando, FL 32826

www.serioussimulations.com

POC: Frank Harman

Tel: (706) 325-7847

Email: frank.harman@harmangrp.com

Sponsor – MCoE



OPERATIONAL DESCRIPTION

The ready2train™ Heavy Weapons Trainer provides a true fully immersive Stationary & Mounted Gunnery & tactical engagement training and rehearsal tool enabling Gunners to develop gunnery skills as well as rehearse tactics, techniques, procedures in a Virtual Situation Training Exercises (STXs) using natural human motion and skills. Wrap around VBS3 Simulation with real weapons & real individual equipment, seamless transitions to Mounted Operations. AARs and rapid re-cock are all part of the capability. Enables training in full combat gear, realism in recoil & marksmanship.

TECHNICAL DESCRIPTION

ready2train™ Heavy Weapons Trainer is a full immersion virtual tactical & Gunnery training & mission rehearsal simulator. It consists of *Proprietary and COTS hardware and software to fully data capture Soldiers, vehicles, and weapons, *0 degrees drift, *Instructor Operating/AAR station. *3D VR displays enable true peripheral vision. Features: *Wireless HD Technology, *Artificial Intelligence, *Widest FOV Helmet Mounted Display (130 degree field of view true 3D), *Wireless Video, (Lower PC upgrade cost and max use of VBS2 , VBS3, Unreal, Unity etc.) TRL # 9

CONTACT INFORMATION

Serious Simulations, LLC

3251 Progress Dr.

Orlando, FL 32826

www.serioussimulations.com

POC: Frank Harman

Tel: (706) 325-7847

Email: frank.harman@harmangrp.com

Sponsor – MCoE



OPERATIONAL DESCRIPTION

The ready2train™ Joint & Combined Arms Fires Control & Coordination Trainer provides a fully immersive training and rehearsal tool enabling Armor, Infantry & Cavalry Leaders to rehearse tactics, techniques, procedures in Fire Control and Coordination in a Virtual Situation Training Exercises (STXs). Wrap around VBS3 simulation with Subordinate Troops, HICON, Army and Joint Fire Support, OPFOR, AARs and rapid re-cock are all part of the ready2train™ Joint & Combined Arms Fires Control & Coordination Trainer capability.

TECHNICAL DESCRIPTION

The ready2train™ Joint & Combined Arms Fires Control & Coordination Trainer is a full immersion virtual tactical leader training & mission rehearsal simulator. It consists of *Proprietary and COTS hardware and software to fully data capture Soldiers, vehicles, and weapons, *10'x10' or greater 6 DOF tracking area, *Instructor Operating/AAR station. *3D VR displays enable true peripheral vision. Features: *Wireless HD Technology, *Artificial Intelligence, *Widest FOV Helmet Mounted Display (130 degree field of view true 3D), *Wireless Video,

CONTACT INFORMATION

Serious Simulations, LLC

3251 Progress Dr.

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POC: Frank Harman

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Sponsor – MCoE



Display/Computer/Global
Positioning System (GPS)



Mission Cable



Video Receiver
(TacRover)

TECHNICAL DESCRIPTION

- Mil Ruggedized display/computer with:
 - 6" Full High Definition (HD) display (1920x1080)
 - Built in SAASM compliant GPS
 - Night Vision Imaging System (NVIS) capable
 - Sunlight Readable
 - Glove capable touchscreen
- Video Receiver: Tactical Common Data Link (TCDL) and Digital Data Link (DDL) for direct receipt of large and small UAS video/telemetry downlinks
- Telemetry data on moving map with 2525 Symbology
- Type I Encryption / Advanced Encryption Standard

OPERATIONAL DESCRIPTION

The Soldier Portable One system remote video Terminal (SPOT) is a potential small form factor addition to the current OSRVT Program Of Record. The SPOT wearable form factor provides the dismounted soldier direct receipt of Unmanned/Manned Intelligence, Surveillance, and Reconnaissance (ISR) video/data feeds. **SPOT provides the disadvantaged user on the tactical edge with enhanced situational awareness thru full motion video and telemetry data from multiple platforms:** ex. Gray Eagle, Shadow, Hunter, Raven, other Unmanned Aircraft Systems (UAS), and manned platforms.

CONTACT INFORMATION

**PM – Unmanned Aircraft Systems (UAS), PdM
Common Systems Integration (CSI)**

Sparkman Center, Bldg. 5300
Redstone Arsenal, AL 35898

OSRVT Assistant Program Manager (APM):

MAJ Art Thomas, Tel: (256) 876-8627

Email: auth.e.thomas.mil@mail.mil

Technical POC: Mark Austin

Tel: (256) 313-5389

Email: mark.r.austin.civ@mail.mil

**TECHNICAL DESCRIPTION**

- Miniature device that measures amperometric response (electric changes) using a flow immunoassay system. Can detect concentrations as low as 0.5 ng/mL (nanograms per milliliter)
- Operation procedure - continuous flow: pathogen capture, washing, detection
 - Automated analyses of a wide range of analytes: drugs, toxins, hormones, peptides, polypeptides, proteins, whole cells, viruses, bacteria, and specific antibodies
 - 3rd party validation by Sandia National Laboratories

OPERATIONAL DESCRIPTION

Handheld automated device for detection of harmful chemicals and pathogens in water.

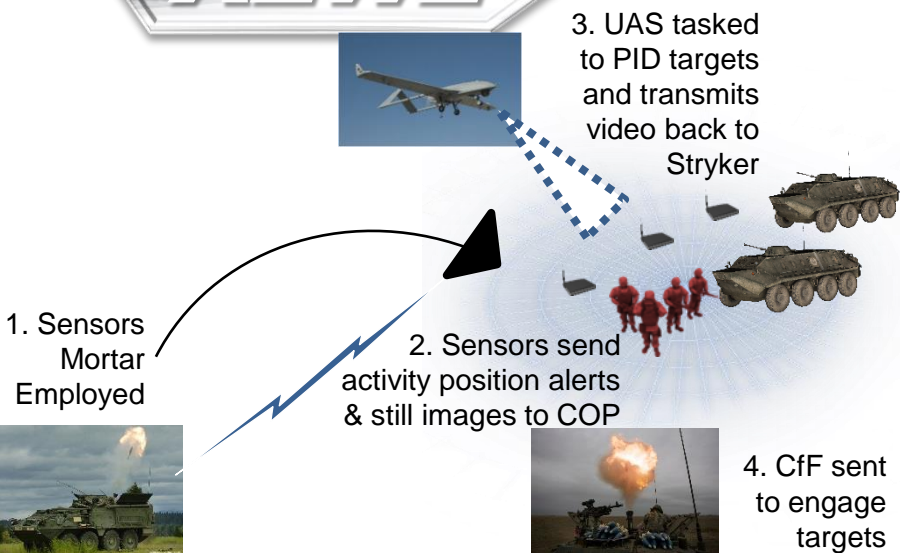
- Detects specific analytes (i.e. toxins & bacteria) with unprecedented speed: < 30 minutes.
- Simple operation procedure.
- Only a small sample required.
- Sensor is a small disposable chip.
- Highly accurate, sensitive, and reliable results.
- Device equipped with a number of sensors for detection of different analytes.

CONTACT INFORMATION

Roving Blue, Inc.
5220 St. Patrick's Road
Lena, WI 54139
www.rovingblue.com

POC: Marianna “Yana” DeMyer
Tel: (920) 621-2163
Email: yanademyer@gmail.com

Sponsor – SCoE



Integrated Sensors aid Fires to Shape Enemy Movements!

OPERATIONAL DESCRIPTION

- Develop Mortar-Deployed UGS for detection and discrimination of enemy dismounts & vehicle formations
- Unmanned Ground and UAS Sensor reports integrated with CfF messages enable rapid enemy engagement with indirect fires.
- Geolocate threats, retreating / reinforcing activity and routes
- Improve mobility through threat risk identification.

TECHNICAL DESCRIPTION

- MD-UGS is designed for deployment by organic mortar tubes. They collect and fuse target signatures into high-confidence target discrimination, location, and tracking reports
- Modular, plug-n-play technologies designed to maximize target discrimination.
- Multi-modality fusion algorithms refine reportable target activity. Supporting imaging sensors confirm activity and location of target.
- Sensor data Integrates and disseminates into vehicles' FBCB2

CONTACT INFORMATION

**Army Research Laboratory
(CERDEC, ARDEC, PM UAS)**

2800 Powder Mill Rd
Adelphi, MD 20783

POC: Jeffrey Houser

Tel: (301) 394-0797

Email: jeffrey.g.houser.civ@mail.mil

Sponsor – ICoE



TECHNICAL DESCRIPTION

Next Generation Wall Breaching System:

- dihedral copper liner
- penetrates double reinforced rebar
- uses 20 lbs NEW
- total system weight is 49 lbs
- Back packable
- out-performs Army RWBK and may be fitted with future liners to decrease NEW and weight

OPERATIONAL DESCRIPTION

Demonstrate the ability of transporting and assembling the Suprakor and employing the Suprakor for use against a double reinforced rebar wall in order to gain access for assault.

- Uses current military demolition materials
- Back packable
- Ships inert
- Assembles and may be placed on target in seconds

CONTACT INFORMATION

Federal Resources

377 Log Canoe Circle
Stevensville, MD 21666

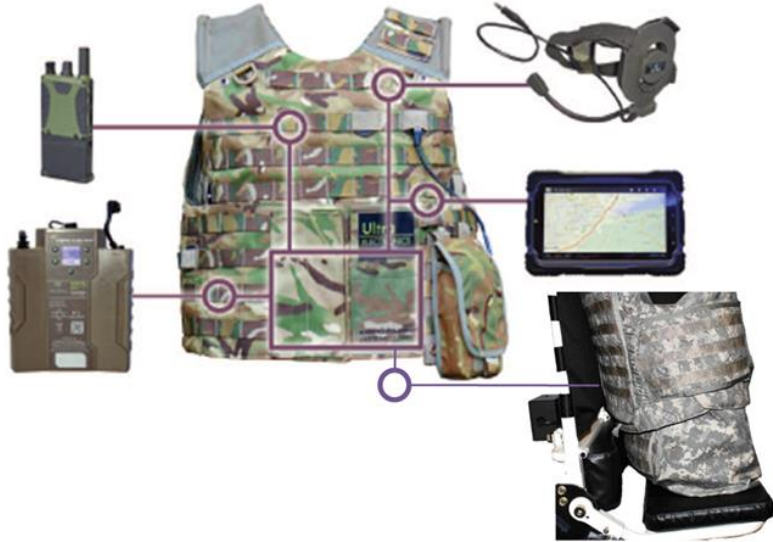
www.federalresources.com

POC: Scott Graham

Tel: (770) 570-0943

Email: scott.graham@federalresources.com

Sponsor – MSCoE



TECHNICAL DESCRIPTION

Open Systems Architecture System for Nett Warrior:

- Software system using openly available architecture
- Hardware system includes:
 - 10 Smart Soldier Role Equipment Connectors
 - Power Control and Distribution Modules
 - Interconnecting Cables

Inductive Seat Charging System:

- Transfer of power between a vehicle seat and the soldier tactical vest
- Connects simply to vehicle power bus using direct connect or NATO plug

OPERATIONAL DESCRIPTION

Demonstrate an ability to rapidly and efficiently connect a large number of frequently changing/ participating systems and platforms in a tactical environment:

- Distributed environment without central servers
- Suitable for low power computing devices and low bandwidth communications for long battery life

Demonstrate an ability to provide cable-less electric power transfer from a vehicle seat to the tactical vest of the soldier sitting in the seat.

- Provide power to the soldier without any cognitive action by the soldier, other than sitting in the seat

CONTACT INFORMATION

Ultra Electronics

Precision Air & Land Systems, Ltd.

Arle Court, Hatherley Lane, Cheltenham

Gloucestershire GL51 6PN, UK

www.ultra-pals.com

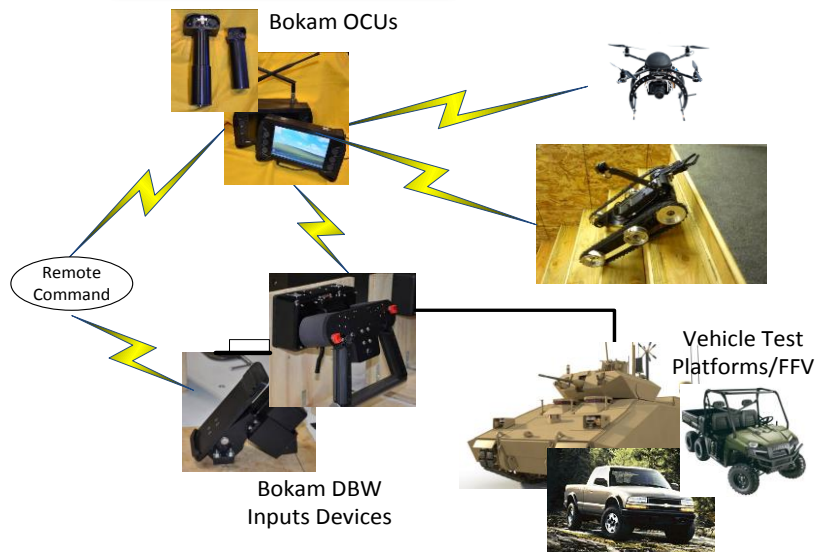
POC: Tony White

Director of Advanced Technology

Tel: +44 (0) 1242 225096

Mobile: +44 (0) 7850 126717

Email: Tony.White@ultra-pals.com



TECHNICAL DESCRIPTION

- Bokam's DBS controls have been extensively tested in various applications including GDLS GCV ATR and other large vehicles.
- Bokam's standard modular universal OCU were developed for various robotic controls including Advanced EOD Robotic System and Runs government control software MOCU.
- Integration of standard modular universal OCU as a removable part of a driver controls enables the remote operation of vehicles in combination with control of various marsupial robots.

OPERATIONAL DESCRIPTION

Demonstration of a driver by wire system on a simulated drive by wire vehicle in a mounted and dismounted manner along with control of additional robotic marsupials

Significant Operational Advantages:

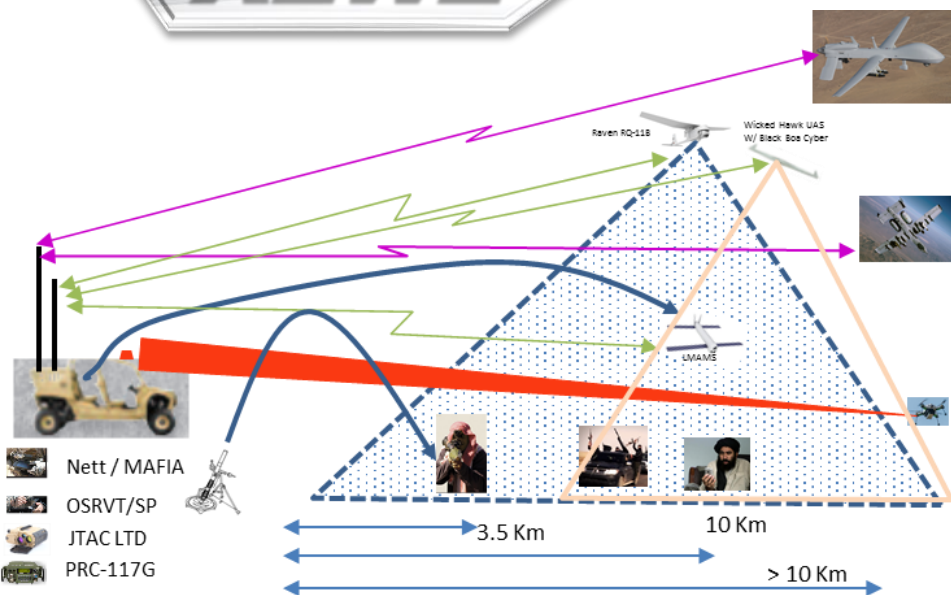
- Force multiplication and multiple asset control
- Emergency control of vehicles from safe distance
- Minimizing required hardware and training by allowing multi function/asset control from same control device

CONTACT INFORMATION

Bokam Engineering Inc
2720 S. Shannon St
Santa Ana, CA 92704
www.bokam.com

POC: Jane Kamentser
Tel: (714) 513-2200
Email: janek@bokam.com

Sponsor – MCoE



TECHNICAL DESCRIPTION

- Mobile, self-contained compressed kill-chain system
- Hosted on a Polaris MRZR-4 ATV able to drive on/off CH-47 or MV-22
- Integrated Raven RQ-11B UAS
- Integrated Wicked Hawk UAS with Black Boa EW system (Wi-Fi detect, locate, jam) flown at MAWTS
- Integrated Deathstalker hostile C-UAS RF emitter warning sensor with bearing
- Integrated Switchblade LMAMS UAS & M-224 60 mm mortar surface-to-surface fires systems
- Integrated C3: MAFIA/KILSWITCH, 2-Ea PRC-117G (W/SRW), OSRVT, & JTAC-LTD (for CAS C2)

OPERATIONAL DESCRIPTION

Helo-insert 3-5 Km from maneuver force LZ and quickly egress to a hide position with space for Raven and Wicked Hawk UAS flight ops. Provides continuous Raven overwatch of the maneuver force with RT video to MAFIA & driver's map display. Wicked Hawk / Black Boa locates enemy Wi-Fi emitters and cues Raven for location, ID and prosecution. Receives fire mission requests from maneuver force via MAFIA and controls LMAMS, mortar, or CAS as appropriate. Deathstalker alerts on hostile UAS D/L presence to cue LMAMS to CUAS engagement. DRASTIC relocates (operating on the move) to maintain proximity to maneuver force.

CONTACT INFORMATION

Integrated Solutions for Systems

4970 Corporate Drive, Suite 100

Huntsville, AL 35805

www.is4s.com

POC: Robert Henderson

Tel: (256)489-9723

Email: Robert.henderson@is4s.com

Sponsor – FCoE

TECHNICAL DESCRIPTION**V10AIO**

- Veragon V10 All In One (code:V10AIO)
- Small, portable, MIL STD appliances allowing water production with maximum quality and minimum cost.
- Operational 'bandwidth': 15-45°C / 20-100% RH
- Disinfection achieved by UV-C and micro dosage of chlorine.
- Power consumption (with, for example, local temp. of 30°C) is about 8 kW/h. Noise rating about 64 db
- Unit frame stainless steel AISI 304 (177cm High / 190cm Wide / 219cm Long / 1000 kg when empty).
- Quality water compliance standard: World Health - Organization, FAO - United Nations, Rome 2007

OPERATIONAL DESCRIPTION

- Veragon V10AIO can produce, under optimal conditions, up to 1000 liters of water a day*.
- This offers a viable alternative to other water supplies (i.e. bottled water, reverse osmosis or desalination systems, boreholes).
- The V10AIO is fully deployable and built to a highly robust specification.
- Fully transportable via C-130, or under-slung, or trailer/flatbed mounted.
- V10AIO is equipped with the V300 treatment unit, which cleans 'fresh' water from wells or other sources to human consumption requirements at 300 litres/hour.

CONTACT INFORMATION**Veragon Water Solutions Ltd**

The Old Dairy
Brewer Street Dairy Business Park,
Bletchingley,
Surrey, RH1 4QP, UK.

www.veragon.com

POC: Nicholas van Cutsem

Tel:+44 (0) 7974 211 431

Email: vancutsem@veragon.com

Sponsor - SCoE

TECHNICAL DESCRIPTION

- The T-20 JUMP is a Tier II/III fixed wing UAV, with unique VTOL capability and endurance
- The T-20 JUMP carries useable multi-int payloads, with high mission endurance (8-16 hrs depending on payloads)
- VTOL capability allows launch and recovery from nearly any location, and eliminates the need for bulky launch and recovery equipment
- VTOL capability is autonomously controlled by the autopilot, reducing training needs for fielded soldiers

OPERATIONAL DESCRIPTION

- Tactical level VTOL Fixed Wing UAV Operations
 - Increase initiate of tactical units with dedicated high-endurance ISR asset employed at the tactical level
 - Increase situational understanding with above Tier1/Group1 tactical UAV
 - High payload capacity for optional payloads to support dynamic reconfiguration for cyber, EW, comms agility
 - Redefine expeditionary nature of tactical UAV employment

CONTACT INFORMATION**Arcturus UAV**

539 Martin Ave

Rohnert Park, CA 94928

www.arcturus-uav.com**POC: Philip Mahill**

Tel: 509-637-4650

Email: philipm@arcturus-uav.com

**TECHNICAL DESCRIPTION**

- Compact: 6 x 3 x 2.8 inches (L x W x H) with included 18° lens, Lightweight: < 1 pound, 640 x 512 resolution
- Modular: Interchangeable lens options
- Enduring: > 2 hours continuous operation at room temperature with 2 CR123A batteries
- Low light imaging and detection of NIR pointers, 1.06 μ m laser designators and 1.55 μ m eye-safe laser rangefinders, pointers and illuminators
- Rugged: MIL-STD-810G compliant, Helmet and weapon mountable, adjustable reticle, digital zoom, media recording

OPERATIONAL DESCRIPTION

The Warrior SPS enables and enhances air-to-ground operations by rapidly and covertly coordinating target location between air and ground forces and provides distinct advantages over other available viewer technologies including visible (CMOS), thermal, and night vision (I2) systems. Battlefield laser aim points (Day/Night) are easily identified, reducing both the time to engage targets, and the risk of fratricide and collateral damage. The Warrior SPS is also capable of imaging through haze, smoke and dust and aids in covert out-of-band SWIR imaging (0.7 to 1.7 μ m), allowing forces to ID, acquire and engage targets faster.

CONTACT INFORMATION**UTC Aerospace Systems
Sensors Unlimited**

330 Carter Road, Suite 1
Princeton, NJ 08540

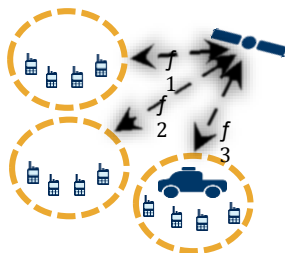
www.sensorsinc.com

POC: Ray Bischoff

Tel: (609) 937-7859

Email: ray.bischoff@utas.utc.com

Sponsor – MCoE/PM SWAR



TECHNICAL DESCRIPTION

- A singular conversion device that connects various waveform UHF TACSAT and VHF military or commercial standard LOS radios.
- The system functions over Inmarsat's I-4 L-Band global satellite network.
- L-TAC affords communications while elements are on the move at 70+ mph in ground, maritime or on airborne platforms.
- The systems is capable of communications with or without encryption.

OPERATIONAL DESCRIPTION

- L-TAC provides a reliable, secure method of communications for US Forces to utilize various LOS radios as BLOS radios; all while on the move.
- Forces can transmit and receive between stations of deployed elements with various Coalition and Partner Nation forces.
- The capability provides for connected voice and data transmissions.
- Tactical CDR's can expand their C2 footprint across a GCC.

CONTACT INFORMATION

TrustComm, Inc.

800 Corporate Drive, Suite 421

Stafford, VA 22554

www.trustcomm.com

POC: Pat Gallagher

Tel: 540-729-0744

Email: pat.gallagher@trustcomm.com

Sponsor – CCoE

**TECHNICAL DESCRIPTION**

- Low Cost, Small Light Weight Jammer
 - Miniaturized, toss-forward counter-RCIED, Communications, and Wi-Fi EA/ECM System
- Each Device configured for up to five different bands
 - VHF/UHF, Cellular, and Wi-Fi Bands
- Remotely Controlled
- Battery Power, rapid recharge
- Low SWaP

OPERATIONAL DESCRIPTION

- Electronic Warfare Operators (EWO) determine and direct the delivery of desired EA/ECM effects and the method of package delivery.
 - Selecting appropriate device band mix in pre-mission planning.
- Non-Electronic Warfare Operators or (EWO) employ individual or multiple EWG systems to cover as many target bands as required.
- EWG can be manually, robotically, or dynamically emplace via multiple means.
- EWG can be utilized in a stand-a-lone, man-packable, mounted or dismounted configuration.

CONTACT INFORMATION

Darkblade Technologies, LLC
8300 Boone Blvd., Suite 500
Vienna, VA 22182

POC: Roger L. Kriegshauser
Tel: (970) 729-1592
Email: Roger@Darkblade-tech.com

Sponsor – Cyber CoE